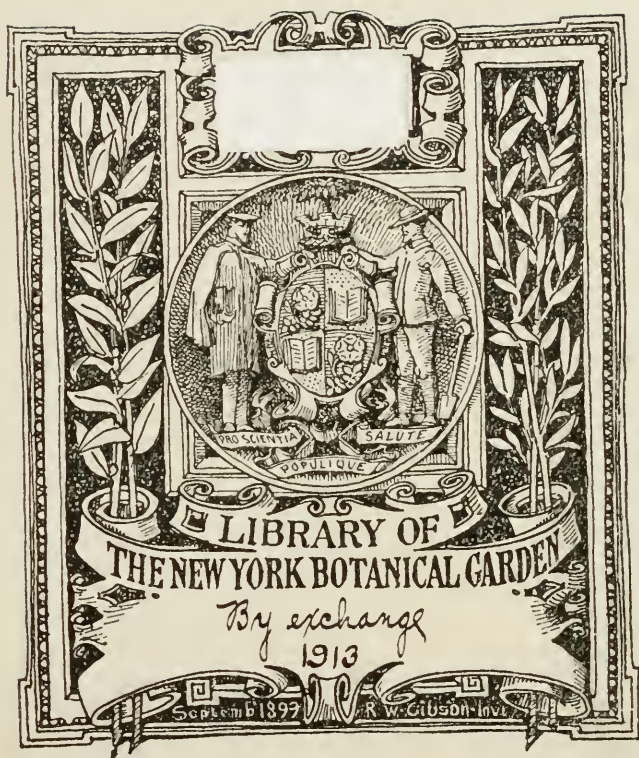




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I. ANALYSES OF FERTILIZERS—FALL SEASON, 1912.

II. REGISTRATION OF FERTILIZERS.

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*Assigned by the Bureau of Soils, United States Department of Agriculture.

†Assigned by the Bureau of Plant Industry, United States Department of Agriculture.

LETTER OF TRANSMITTAL.

RALEIGH, N. C., January 15, 1913.

HON. W. A. GRAHAM,

Commissioner of Agriculture.

SIR:—I submit herewith analyses of fertilizers made in the laboratory of samples collected during the past fall. These analyses show fertilizers to be about as heretofore, and to be, generally, what was claimed for them. I recommend that it be issued as the January BULLETIN.

Very respectfully,

B. W. KILGORE,

State Chemist.

Approved for printing:

W. A. GRAHAM,

Commissioner.

I. ANALYSES OF FERTILIZERS—FALL SEASON, 1912.

By B. W. KILGORE,

W. G. HAYWOOD, J. M. PICKEL, J. Q. JACKSON AND E. S. DEWAR.

The analyses presented in this BULLETIN are of samples collected by the fertilizer inspectors of the Department, under the direction of the Commissioner of Agriculture, during the fall months of 1912. They should receive the careful study of every farmer in the State who uses fertilizers, as by comparing the analyses in the BULLETIN with the claims made for the fertilizers actually used, the farmer can know by or before the time fertilizers are put in the ground whether or not they contain the fertilizing constituents in the amounts they were claimed to be present.

TERMS USED IN ANALYSES.

Water-soluble Phosphoric Acid.—Phosphate rock, as dug from the mines, mainly in South Carolina, Florida, and Tennessee, is the chief source of phosphoric acid in fertilizers.

In its raw, or natural state, the phosphate has three parts of lime united to the phosphoric acid (called by chemists tri-calcium phosphate). This is very insoluble in water and is not in condition to be taken up readily by plants. In order to render it soluble in water and fit for plant food, the rock is finely ground and treated with sulphuric acid, which acts upon it in such a way as to take from the three-lime phosphate two parts of its lime, thus leaving only one part of lime united to the phosphoric acid. This one-lime phosphate is what is known as water-soluble phosphoric acid.

Reverted Phosphoric Acid.—On long standing some of this water-soluble phosphoric acid has a tendency to take lime from other substances in contact with it, and to become somewhat less soluble. This latter is known as reverted or gone-back phosphoric acid. This is thought to contain two parts of lime in combination with the phosphoric acid, and is thus an intermediate product between water-soluble and the original rock.

Water-soluble phosphoric acid is considered somewhat more valuable than reverted, because it becomes better distributed in the soil as a consequence of its solubility in water.

Available Phosphoric Acid is made up of the water-soluble and reverted; it is the sum of these two.

Water-soluble Ammonia.—The main materials furnishing ammonia in fertilizers are nitrate of soda, sulphate of ammonia, cotton-seed meal, dried blood, tankage, and fish scrap. The first two of these (nitrate of

soda and sulphate of ammonia) are easily soluble in water and become well distributed in the soil where plant roots can get at them. They are, especially the nitrate of soda, ready to be taken up by plants, and are therefore quick-acting forms of ammonia. It is mainly the ammonia from nitrate of soda and sulphate of ammonia that will be designated under the heading of water-soluble ammonia.

Organic Ammonia.—The ammonia in cotton-seed meal, dried blood, tankage, fish scrap, and so on, is included under this heading. These materials are insoluble in water, and before they can feed plants they must decay and have their ammonia changed, by the aid of the bacteria of the soil, to nitrates, similar to nitrate of soda.

They are valuable then as plant food in proportion to their content of ammonia, and the rapidity with which they decay in the soil, or rather the rate of decay, will determine the quickness of their action as fertilizers. With short season, quick-growing crops, quickness of action is an important consideration, but with crops occupying the land during the greater portion, or all, of the growing season, it is better to have a fertilizer that will become available more slowly, so as to feed the plant till maturity. Cotton-seed meal and dried blood decompose fairly rapidly, but will last the greater portion, if not all, of the growing season in this State. While cotton seed and tankage will last longer than meal and blood, none of these act so quickly, or give out so soon, as nitrate of soda and sulphate of ammonia.

Total Ammonia is made up of the water-soluble and organic; it is the sum of these two.

The farmer should suit, as far as possible, the kind of ammonia to his different crops, and a study of the forms of ammonia as given in the tables of analyses will help him to do this.

VALUATIONS.

To have a basis for comparing the values of different fertilizer materials and fertilizers, it is necessary to assign prices to the three valuable constituents of fertilizers—ammonia, phosphoric acid, and potash. These figures, expressing relative value per ton, are not intended to represent crop-producing power, or agricultural value, but are estimates of the commercial value of ammonia, phosphoric acid and potash in the materials supplying them. These values are only approximate (as the costs of fertilizing materials are liable to change, as other commercial products are), but they are believed to fairly represent the cost of making and putting fertilizers on the market. They are based on a careful examination of trade conditions, wholesale and retail, and upon quotations of manufacturers.

Relative value per ton. or the figures showing this, represents the prices on board the cars at the factory, in retail lots of five tons or less, for cash.

To make a complete fertilizer the factories have to mix together in proper proportions materials containing ammonia, phosphoric acid and potash. This costs something. For this reason it is thought well to have two sets of valuations—one for the raw or unmixed materials, such as acid phosphate, kainit, cotton-seed meal, etc., and one for mixed fertilizers.

The values used last season were:

VALUATIONS FOR 1912.

In Unmixed or Raw Materials.

For phosphoric acid in acid phosphate.....	4	cents per pound.
For phosphoric acid in bone meal, basic slag, and Peruvian Guano	3½	cents per pound.
For nitrogen	19½	cents per pound.
For potash	4	cents per pound.

In Mixed Fertilizers.

For phosphoric acid	4½	cents per pound.
For nitrogen	21	cents per pound.
For potash	5	cents per pound.

HOW RELATIVE VALUE IS CALCULATED.

In the calculation of relative value it is only necessary to remember that so many per cent means the same number of pounds per hundred, and that there are twenty hundred pounds in one ton (2,000 pounds).

With an 8-2-1.65 goods, which means that the fertilizer contains available phosphoric acid 8 per cent, potash 2 per cent, and nitrogen 1.65 per cent, the calculation is made as follows:

<i>Percentage or Lbs. in 100 Lbs.</i>	<i>Value Per 100 Lbs.</i>	<i>Value Per Ton, 2,000 Lbs.</i>
8 pounds available phosphoric acid at 4½ cents...	$0.36 \times 20 =$	\$ 7.20
2 pounds potash at 5 cents.....	$0.10 \times 20 =$	2.00
1.65 pounds nitrogen at 21 cents.....	$0.346 \times 20 =$	6.93
Total value	$0.817 \times 20 =$	\$16.13

Freight and merchant's commission must be added to these prices. Freight rates from the seaboard and manufacturing centers to interior points are given in the following table:

FREIGHT RATES FROM THE SEABOARD TO INTERIOR POINTS.—From the Published Rates of the Associated Railways of Virginia and the Carolinas. In car-loads, of not less than ten tons each, per ton of 2,000 pounds. Less than car-loads, add 20 per cent.

Destination.	From Wilmington, N. C.	From Norfolk and Portsmouth, Va.	From Charleston, S. C.	From Richmond, Va.
Advance.....	\$ 3.20	\$ 3.20	\$ 3.40	\$ 3.20
Apex.....	2.70			
Asheboro.....	3.20	3.20	3.80	3.00
Asheville.....	4.00	4.00	3.60	3.20
Chapel Hill.....	2.95	3.20	4.00	4.00
Charlotte.....	2.65	3.20	3.90	3.20
Clayton.....	2.48	3.20	2.85	3.20
Cherryville.....	3.85	2.86	3.63	2.80
Clinton.....	1.60	3.60	3.40	3.63
Creedmoor.....	3.00	3.00	3.20	3.00
Cunningham.....	3.00	3.00	3.80	3.00
Dallas.....	3.00	2.40	4.00	2.40
Davidson College.....	3.00	3.60	3.40	3.60
Dudley.....	3.00	3.20	3.20	3.20
Dunn.....	1.70	3.00	3.20	3.00
Durham.....	2.00	2.80	3.20	2.80
Elkin.....	2.80	2.83	3.20	2.83
Elm City.....	3.60	3.20	3.60	3.20
Fair Bluff.....	2.10	2.60	3.20	2.60
Fayetteville.....	1.60	3.80	2.40	3.80
Forestville.....	1.80	3.00	3.00	3.00
Gastonia.....	2.85	3.00	3.80	3.06
Gibson.....	3.12	3.25	3.12	3.25
Goldsboro.....	2.10	3.50	2.10	3.50
Greensboro.....	1.80	2.80	3.20	2.80
Hamlet.....	2.96	3.00	3.40	3.00
Henderson.....	2.00	3.00	3.60	3.00
Hickory.....	3.00	2.83	3.55	2.83
High Point.....	3.20	3.60	3.20	3.60
Hillsboro.....	3.00	3.08	3.40	3.08
Kernersville.....	2.88	2.88	2.68	2.88
Kinston.....	3.00	3.00	3.40	3.00
Laurel Hill.....	2.10	2.80	3.50	2.80
Laurinburg.....	1.90	3.40	3.80	3.40
Liberty.....	1.90	3.40	3.80	3.40
Louisburg.....	2.72	3.60	3.80	3.60
Lumberton.....	2.95	3.00	3.80	3.00
Macon.....	1.60	3.60	3.70	3.60
Madison.....	3.05	3.00	3.85	3.00
Matthews.....	3.00	3.00	3.40	3.00
Maxton.....	2.60	3.20	3.20	3.20
Milton.....	1.80	3.40	2.70	3.40
Mocksville.....	3.44	2.40	4.00	2.40
Morven.....	3.36	3.20	3.40	3.20
Mount Airy.....	2.55	3.60	2.50	3.60
Nashville.....	3.20	3.40	3.80	3.40
New Bern.....	2.30	2.90	3.40	2.90
Norwood.....	1.25	1.75	3.95	1.75
Oxford.....	3.68	3.20	3.20	2.23
Pineville.....	3.04	2.83	3.55	2.83
Pittsboro.....	2.77	3.25	3.00	3.20
Polkton.....	2.60	3.30	4.10	3.30
Raleigh.....	2.40	3.00	2.20	3.00
Reidsville.....	2.56	2.83	3.40	2.83
Rockingham.....	3.00	2.96	3.40	2.86
Rocky Mount.....	2.10	3.00	3.80	3.00
Ruffin.....	2.20	2.50	3.40	2.50
Rural Hall.....	3.28	2.80	3.40	2.20
Rutherfordton.....	3.28	3.20	3.60	3.20
Salisbury.....	3.05	3.65	3.05	3.65
Sanford.....	3.25	3.20	3.20	3.20
Selma.....	2.10	3.00	3.40	3.00
Shelby.....	2.10	2.80	3.20	2.80
Siler City.....	2.90	3.60	3.90	3.60
Smithfield.....	2.60	3.60	3.80	3.60
Statesville.....	2.20	2.80	3.20	2.80
Stem.....	3.50	3.20	3.60	3.20
Tarboro.....	2.95	2.83	3.80	2.83
Waco.....	2.30	2.40	3.00	3.00
Wadesboro.....	2.90	3.60	3.40	3.60
Walnut Cove.....	2.30	3.00	2.50	3.00
Warrenton.....	3.00	3.00	3.40	3.00
Warsaw.....	3.05	3.25	4.10	3.25
Washington.....	1.50	3.00	3.20	3.00
Weldon.....	2.65	1.75	2.25	1.50
Wilson.....	2.95	1.90	3.85	1.90
Winston-Salem.....	2.00	2.60	3.20	2.60
	3.00	3.00	3.40	3.00

ANALYSES OF COMMERCIAL FERTILIZERS—FALL SEASON, 1912.

Laboratory Number.	Name and Address of Manufacturer.	Name of Brand.	Where Sampled.	Percentage Composition or Parts per 100.						Relative Value per Ton at Factory.
				Available Phosphoric Acid.	Water-soluble Nitrogen.	Organic Nitrogen.	Total Nitrogen.	Equivalent to Ammonia.	Total Potash.	
MIXED FERTILIZERS.										
	Brands claiming			8.00			1.65	2.00	2.00	\$ 16.13
1443	Dixie Guano Co., Suffolk, Va.	Dixie Standard Guano	Roxboro	8.25	1.05	.86	1.91	2.32	2.24	17.69
1489	Imperial Co., Norfolk, Va.	Champion Guano	Mount Airy	8.39	1.35	.50	1.85	2.25	2.00	17.32
1498	Lister's Agricultural Chemical Works, Newark, N. J.	Lister's Success Fertilizer	Siler City	9.14	1.01	.70	1.71	2.08	2.49	17.90
1396	Marietta Fertilizer Co., Atlanta, Ga.	Marietta Solid South	Mount Airy	6.33	.53	.98	1.51	1.84	2.56	15.60
1450	Navassa Guano Co., Wilmington, N. C.	Navassa Grain Fertilizer	Statesville	9.47	1.13	.32	1.45	1.78	2.04	16.65
1524	Norfolk Fertilizer Co., Norfolk, Va.	Oriana Crop Grower	Concord	7.97	1.08	.67	1.75	2.13	2.03	16.55
1441	Patapasco Guano Co., Baltimore, Md.	Sea Gull Ammoniated Guano	Roxboro	8.97	.95	.74	1.69	2.05	2.11	17.28
1412	Piedmont-Mount Airy Guano Co., Baltimore, Md.	Piedmont Bone and Peruvian Mixture	Burlington	9.47	.39	.88	1.27	1.54	3.12	16.98
1353	Poehontas Guano Co., Lynchburg, Va.	Carrington Banner Brand Guano	Pinnacle	8.36	1.57	1.38	2.95	3.59	1.98	21.89
1490	Powhatan Chemical Co., Richmond, Va.	Magic Tobacco Grower	Mount Airy	7.89	.51	1.32	1.83	2.22	2.46	17.25
1504	Reidsville Fertilizer Co., Reidsville, N. C.	Banner Fertilizer	Asheboro	8.00	.61	1.22	1.83	2.22	2.35	17.24
1472	Richmond Guano Co., Richmond, Va.	Premium Brand Fertilizer	Huntersville	8.68	.89	.74	1.63	1.98	2.06	16.72
1479	Robertson Fertilizer Co., Norfolk, Va.	Double Dollar Soluble Guano	Mocksville	8.14	.71	.96	1.67	2.03	1.95	16.29
1440	Royster, F. S., Guano Co., Norfolk, Va.	Farmers' Bone Fertilizer	Durham	8.17	1.05	.58	1.63	1.98	2.07	16.27
1425	do.	Royster's Special Wheat Fertilizer	Maiden	8.04	.93	.78	1.71	2.08	2.05	16.47
1369	do.	do.	Hendersonville	8.70	.87	.88	1.75	2.13	1.89	17.07

1406	Southern Cotton Oil Co., Monroe, N. C.	Gloria Standard Fertilizer.	Monroe	9.82	.11	1.58	1.69	2.05	2.54	18.48
1550	Southern Cotton Oil Co., Shelby, N. C.	Double Two	Shelby	8.00	.77	1.18	1.95	2.37	2.43	17.82
1424	Swift Fertilizer Works, Atlanta, Ga.	Swift's Red Steer Standard Grade	Maiden	7.81	.83	.86	1.69	2.05	1.86	15.99
1344	Tuscarora Fertilizer Co., Atlanta, Ga.	Tuscarora Standard	Concord	7.88	.91	.78	1.69	2.05	1.64	15.83
1513	Union Guano Co., Winston, N. C.	Fish Brand Ammoniated Guano.	King	8.81	.65	.64	1.29	1.57	1.81	15.16
1469	do	Old Honesty Guano	Davidson	9.73	.82	.48	1.30	1.58	1.57	15.79
1556	Venable Fertilizer Co., Richmond, Va.	Planters' Bone Fertilizer	Kings Mountain	8.38	.53	1.24	1.77	2.15	2.42	17.40
1456	Va.-Car. Chemical Co., Richmond, Va.	Allison & Addison's Anchor Brand Fertilizer.	Marshall	10.92	1.23	.36	1.59	1.93	1.77	18.28
1468	do	Davie & Whittle's Owl Brand Guano	Charlotte	7.68	.75	1.12	1.87	2.27	2.48	16.25
1405	do	Durham Fertilizer Co.'s Genuine Bone and Peruvian Guano.	Albemarle	8.58	1.15	.50	1.65	2.01	2.20	16.85
1448	do	Old Dominion Guano Co.'s Soluble Guano.	Taylorsville	8.26	1.03	1.04	2.07	2.52	2.19	18.32
1521	do	Old Dominion Guano Co.'s Soluble Tobacco Guano.	Walnut Cove	7.76	.35	1.18	1.53	1.86	2.69	16.02
1352	do	Southern Chemical Co.'s Standard Guano.	No. Wilkesboro	10.23	.31	.44	.75	.91	1.62	13.98
1373	do	Travers & Co.'s Beef, Blood, and Bone Fertilizer.	Pittsboro	8.47	1.01	.54	1.55	1.88	2.01	16.14
1409	do	Travers & Co.'s National Fertilizer	Graham	8.57	.91	.58	1.49	1.81	1.90	15.91
1514	do	V.-C. C. Co.'s Plant Food C. S. M.	Pilot Mountain	7.65	.23	1.44	1.67	2.03	2.71	16.61
Brand claiming				8.00			2.06	2.50	2.00	17.85
1449	Lister's Agricultural Chemical Works, Newark, N. J.	Lister's Ammoniated Dissolved Bone Phosphate.	Loray	8.62	1.29	1.02	2.31	2.81	2.09	19.55
Brands claiming				8.00			2.06	2.50	3.00	19.15
1334	Pittspsco Guano Co., Baltimore, Md.	Unicorn Guano.	No. Wilkesboro	9.33	1.93	.34	2.27	2.76	3.00	20.93
1395	Va.-Car. Chemical Co., Richmond, Va.	Durham Fertilizer Co.'s N. C. Official Farmers' Alliance Guano.	Pilot Mountain	8.40	1.23	.74	1.97	2.40	3.60	19.43
Brand claiming				8.00			2.47	3.00	2.50	20.07
1375	Acme Mfg. Co., Wilmington, N. C.	Acme Fertilizer	Sanford	7.33	1.51	1.52	3.63	3.68	2.58	21.90
Brands claiming				8.00			2.47	3.00	3.00	20.57
1364	American Agricultural Chemical Co., New York, N. Y.	Lazaretto Challenge Fertilizer.	Hickory	9.04	1.57	.74	2.31	2.81	2.98	20.82
1346	do	Zell's Reliance High Grade Manure	China Grove	8.54	1.49	.78	2.27	2.76	3.14	20.36

ANALYSES OF COMMERCIAL FERTILIZERS—FALL SEASON, 1912.

Laboratory Number.	Name and Address of Manufacturer.	Name of Brand.	Where Sampled.	Percentage Composition or Parts per 100.					Relative Value per Ton at Factory
				Available Phosphoric Acid.	Water-soluble Nitrogen.	Organic Nitrogen.	Total Nitrogen.	Equivalent to Ammonia.	
									Potash.
									Total.
MIXED FERTILIZERS.									
	Brands claiming.			8.00			2.47	3.00	\$ 20.57
1408	American Fertilizer Co., Norfolk, Va.	American Eagle Guano.	Wadesboro.	9.57	1.19	1.00	2.19	2.66	20.53
1502	Baugh & Sons Co., Norfolk, Va.	Baugh's Grand Rapid High Grade Guano.	Aberdeen.	8.05	1.83	.78	2.61	3.17	21.51
1374	Carolina Union Fertilizer Co., Norfolk, Va.	Carolina Union 3-8-3.	Siler City.	8.37	.99	1.36	2.35	2.86	20.18
1394	Columbia Guano Co., Norfolk, Va.	Hyco Tobacco Guano.	Wilson.	8.65	1.79	.72	2.51	3.05	21.04
1363	do.	Olympia Cotton Guano.	Hickory.	8.17	1.59	.86	2.45	2.98	20.61
1520	Imperial Co., Norfolk, Va.	Tobacco Guano.	Stokesdale.	8.92	1.81	.40	2.33	2.83	21.12
1397	Marietta Fertilizer Co., Atlanta, Ga.	Marietta Pride of Piedmont.	Mount Airy.	7.60	.43	1.92	2.43	2.95	21.18
1545	Royster, F. S., Guano Co., Norfolk, Va.	Bonanza Tobacco Guano.	Hickory.	8.31	1.55	.90	2.45	2.98	20.91
1345	do.	Marlboro High Grade Cotton Grower.	China Grove.	8.23	1.63	.86	2.49	3.03	21.07
1554	Swift Fertilizer Works, Atlanta, Ga.	Ruralist High Grade.	Shelby.	8.51	1.15	1.04	2.19	2.66	19.51
1555	Tuscarora Fertilizer Co., Atlanta, Ga.	Tuscarora 8-3-3.	Gastonia.	8.50	1.13	.92	2.05	2.49	20.01
1422	Va.-Car. Chemical Co., Richmond, Va.	Allison & Addison's A. A. Guano.	Lincolnton.	9.08	1.59	.96	2.55	3.10	22.03
1407	do.	Durham Fertilizer Co.'s Gold Medal Brand Guano.	Charlotte.	9.44	1.17	.78	1.95	2.37	19.89
1367	do.	Old Dominion Guano Co.'s Farmers' Friend H. G. Fertilizer.	Brevard.	8.13	2.84	.39	3.23	3.93	26.65
1436	do.	Tinsley's H. G. Tobacco Guano.	Roxboro.	9.79	1.73	.76	2.49	3.03	22.36

	Brand claiming			8.00	2.47	3.00	5.00	22.57
1393	Royster, F. S., Guano Co., Norfolk, Va.	Eagle's Special Tobacco Guano.	Wilson	8.49	.74	1.69	5.11	22.96
	Brand claiming			8.00			7.00	27.26
1392	Royster, F. S., Guano Co., Norfolk, Va.	Royster's Best Guano.	Wilson	8.15	1.18	2.35	6.14	28.30
	Brand claiming			8.50			2.00	19.14
1438	Va.-Car. Chemical Co., Richmond, Va.	Allison & Addison's Anchor Brand Tobacco Fertilizer.	Durham	8.42	.30	1.47	2.20	17.21
	Brand claiming			9.00			2.00	13.77
1439	Rasin-Monumental Co., Baltimore, Md.	Baltimore Special Mixture.	Hillsboro	9.53	.48	.33	2.14	14.12
	Brand claiming			9.00			2.00	14.30
1526	Robertson Fertilizer Co., Norfolk, Va.	Robertson Blood and Bone Mixture.	Troutman	9.25	.60	.45	2.17	15.07
	Brands claiming			9.00			3.00	14.54
1557	Atlantic Chemical Co., Norfolk, Va.	Atlantic Grain Guano.	Kings Mountain	8.90	.44	.43	2.81	14.74
1355	Carolina Warehouse Co., Salisbury, N. C.	Farmers' Union 9-1-3 Guano.	North Wilkesboro	8.04	.76	.83	4.10	18.01
1361	do.	do.	Lincolnton	8.98	.03	.57	1.78	17.21
1362	Columbia Guano Co., Norfolk, Va.	Columbia Grain Guano.	Rutherfordton	9.47	.48	.57	2.49	15.42
1379	Navassa Guano Co., Wilmington, N. C.	Long's Wheat and Grass Guano.	Mooresville	10.00	.25	.46	3.04	15.02
1442	Patapasco Guano Co., Baltimore, Md.	Coon Brand Guano.	Roxboro	10.44	.33	.42	2.22	14.77
1333	Royster, F. S., Guano Co., Norfolk, Va.	Royster's Grain Guano.	Elkin	10.00	.35	.55	2.95	15.77
1537	Va.-Car. Chemical Co., Richmond, Va.	V-C. C. Co.'s McCormick's Wheat and Grain Guano.	Statesville	8.82	.44	.53	3.00	15.01
	Brand claiming			9.00			1.00	16.03
1437	Va.-Car. Chemical Co., Richmond, Va.	Allison & Addison's Star Brand	Durham	8.65	.32	1.09	1.31	15.02
	Brand claiming			9.00			3.00	18.03
1470	Union Guano Co., Winston, N. C.	Farmers' Blood and Bone Guano.	Cornelius	8.87	.62	1.29	3.95	19.95
	Brand claiming			9.00			1.00	16.87
1473	Bradley Fertilizer Co., Charleston, S. C.	Standard Sea Fowl Guano.	Charlotte	10.17	.85	.18	1.27	18.95

ANALYSES OF COMMERCIAL FERTILIZERS—FALL SEASON, 1912.

Laboratory Number.	Name and Address of Manufacturer.	Name of Brand.	Where Sampled.	Percentage Composition or Parts per 100.						Relative Value per Ton at Factory.
				Available Phosphoric Acid.	Water-soluble Nitrogen.	Organic Nitrogen.	Total Nitrogen.	Equivalent to Ammonia.	Total Potash.	
MIXED FERTILIZERS.										
				9.00			1.85	2.25	4.00	\$ 19.87
1398	Berkley Chemical Co., Norfolk, Va.	Monitor Animal Bone Fertilizer	Pilot Mountain	9.09	1.53	.68	2.21	2.69	3.93	21.39
				9.00			2.47	3.00	3.00	21.47
1503	Poehontas Guano Co., Lynchburg, Va.	Poehontas Special Tobacco Fertilizer.		8.54	.99	1.44	2.43	2.95	3.44	21.33
				10.00			.82	1.00	2.50	14.94
1411	Va.-Car. Chemical Co., Richmond, Va.	Ford's Wheat and Corn Guano	Burlington	9.92	.43	.26	.69	.84	4.19	17.02
				10.00			.82	1.00	3.00	15.44
1471	Swift Fertilizer Works, Atlanta, Ga.	Swift's Planters' Special Standard Grade Guano.	Mooresville	10.47	.55	.56	1.11	1.35	2.55	16.63
				10.00			1.65	2.00	2.00	17.93
1370	Asheville Packing Co., Asheville, N. C.	Asheville Packing Co.'s Complete Fertilizer.	Asheville	8.99	.99	1.20	2.19	2.66	2.93	20.21
1527	Union Guano Co., Winston, N. C.	Mule Brand Guano.	Croft	9.83	.47	.98	1.45	1.76	2.59	17.53
				8.00					4.00	11.20
1474	American Fertilizer Co., Norfolk, Va.	High Grade Mixture for Wheat	Charlotte	10.72					3.96	13.61
1522	Armour Fertilizer Works, Atlanta, Ga.	Armour's Phosphate and Potash No. 3.	Elkin	8.35					3.51	11.02
1336	Atlantic Chemical Co., Norfolk, Va.	Atlantic Bone and Potash Mixture.	Elkin	7.99					3.83	11.02

1357	Carolina Warehouse Co., Salisbury, N. C.	Farmers' Union 8-4 Bone and Potash.	No., Wilkesboro.	8.90			5.61	13.62
1399	Navassa Guano Co., Wilmington, N. C.	Navassa Dissolved Bone with Potash.	Mount Airy	11.99			2.79	13.58
1530	Norfolk Fertilizer Co., Norfolk, Va.	Mayodan Valley Wheat Grower.	Concord	9.97			4.46	13.43
1493	Richmond Guano Co., Richmond, Va.	Winter Grain and Grass Grower.	Mount Airy	8.58			4.06	11.78
1496	Robertson Fertilizer Co., Norfolk, Va.	Special Bone and Potash Mixture.	Crutchfield.	8.29			3.79	11.25
1337	Royster, F. S., Guano Co., Norfolk, Va.	Royster's 8-4 Bone and Potash Mixture.	Elkin.	7.81			3.57	10.60
1338	Swift Fertilizer Works, Atlanta, Ga.	Swift's Plantation Standard Grade Phosphate and Potash.	Elkin.	7.94			3.60	10.75
1516	Union Guano Co., Winston, N. C.	Union Wheat Mixture.	Rural Hall.	10.90			2.54	12.35
1339	Van-Car, Chemical Co., Richmond, Va.	Durham Fertilizer Co.'s Carr's Special Wheat Grower.	Elkin.	10.29			3.91	13.17
1359	-----do-----	Jones' Grain Special	No., Wilkesboro.	9.80			3.48	12.30
1418	-----do-----	Old Dominion Guano Co.'s Miller's Special Wheat Mixture.	Burlington.	8.57			4.09	11.80
1341	-----do-----	Southern Chemical Co.'s Click's Special Wheat Compound.	Elkin.	10.67			3.08	12.68
Brands claiming								
1538	American Agricultural Chemical Co., New York, N. Y.	Zell's Bone and Potash.	Statesville	10.83			2.41	12.16
1495	Armour Fertilizer Works, Atlanta, Ga.	Armour's Phosphate and Potash Fertilizer.	Elkin.	9.94			1.91	10.86
1462	Asheville Packing Co., Asheville, N. C.	Asheville Packing Co.'s Special XXX Wheat Grower.	Asheville.	11.60			2.73	13.17
1335	Atlantic Chemical Co., Norfolk, Va.	Atlantic Bone and Potash Mixture.	Elkin.	9.99			2.04	11.03
1452	Baugh & Sons Co., Norfolk, Va.	Baugh's Soluble Alkaline Superphosphate.	Statesville	9.21			3.46	11.75
1499	Bryant Fertilizer Co., Alexandria, Va.	Bryant's Bone and Potash Mixture.	Siler City.	12.14			1.31	12.24
1540	Craven Chemical Co., New Bern, N. C.	Trent Bone and Potash.	Statesville	8.45			1.81	9.41
1481	Farmers Guano Co., Raleigh, N. C.	Century Bone and Potash Mixture.	Coolseemee	10.49			2.28	11.72
1508	Imperial Co., Norfolk, Va.	Bone and Potash.	Mount Gilead	12.02			2.24	13.06
1549	-----do-----	Virginia Gray Mixture.	Hickory	10.90			2.58	12.39
1360	Navassa Guano Co., Wilmington, N. C.	Navassa Dissolved Bone with Potash.	Rutherfordton	9.83			2.16	11.01
1505	Pocomoke Guano Co., Norfolk, Va.	10-2 Potash Mixture.	Troy	9.94			1.86	10.81
1482	Powhatan Chemical Co., Richmond, Va.	Bone and Potash Mixture.	Mocksville	10.07			2.34	11.40

ANALYSES OF COMMERCIAL FERTILIZERS—FALL SEASON, 1912.

Laboratory Number.	Name and Address of Manufacturer.	Name of Brand.	Where Sampled.	Percentage Composition or Parts per 100.						Relative Value per Ton at Factory.
				Available Phosphoric Acid.	Water-soluble Nitrogen.	Organic Nitrogen.	Total Nitrogen.	Equivalent to Ammonia.	Potash.	
MIXED FERTILIZERS.										
Brands claiming										
1480	Robertson Fertilizer Co., Norfolk, Va.	Level Run Dissolved Bone and Potash.	Mocksville.	10.00					2.00	\$ 11.00
1451	Royster, F. S., Guano Co., Norfolk, Va.	Royster's Bone and Potash Mixture.	Stony Point.	10.57					2.07	11.58
1548	Swift Fertilizer Works, Atlanta, Ga.	Swift's Field and Farm Standard Grade Phosphate and Potash.	Morganton.	10.06					2.00	11.05
1426	do	Swift's Wheat Grower Standard Grade Phosphate and Potash.	Maiden.	10.18					1.63	10.79
1414	Union Guano Co., Winston, N. C.	Union Bone and Potash.	Siler City.	10.23					1.94	11.15
1427	Va.-Car. Chemical Co., Richmond, Va.	Durham Fertilizer Co.'s Blue Ridge Wheat Grower.	Alexis.	10.76					1.64	11.32
1460	do	Durham Fertilizer Co.'s Standard Wheat Grower.	Clyde.	10.67					1.74	11.34
1340	do	Lynchburg Guano Co.'s Dissolved Bone and Potash.	Elkin.	13.14					1.36	13.19
1419	do	Old Dominion Guano Co.'s Alkaline Bone and Potash.	Burlington.	10.51					2.13	11.60
1445	do	Southern Chemical Co.'s Mammoth Wheat Grower.	Roxboro.	10.71					2.19	11.83
1342	do	Travers & Co.'s Capital Bone and Potash.	Elkin.	10.57					2.20	11.71
1403	do	V.-C. C. Co.'s Dissolved Bone and Potash.	Pilot Mountain.	9.67					2.31	11.01
Brand claiming				10.12					1.92	11.03
				10.00					2.25	11.25
				10.40					2.13	11.49
1558	Navassa Guano Co., Wilmington, N. C.	Navassa Wheat Mixture.	Shelby.							

ANALYSES OF COMMERCIAL FERTILIZERS—FALL SEASON, 1912.

Laboratory Number.	Name and Address of Manufacturer.	Name of Brand.	Where Sampled.	Percentage Composition or Parts per 100.					Relative Value per Ton at Factory.
				Available Phosphoric Acid.	Water-soluble Nitrogen.	Organic Nitrogen.	Total Nitrogen.	Equivalent to Ammonia.		Potash.
MIXED FERTILIZERS.									
Brands claiming									
1428	Va.-Car. Chemical Co., Richmond, Va.		Old Dominion Obelisk Brand Bone and Iron Potash.	10.00				4.00	\$ 13.00
1446	do.		Southern Chemical Co.'s Winner Grain Mixture.	10.90				3.23	13.04
1416	do.		V.-C. C. Co.'s Special Potash Mixture.	11.54				3.41	13.80
1378	do.		Va. State Fertilizer Co.'s XX Potash Mixture.	10.17				4.66	13.81
			Pittsboro.	10.65				4.40	13.98
Brands claiming									
1383	Carolina Union Fertilizer Co., Norfolk, Va.		Carolina Union 10-5.	10.00				5.00	14.00
1400	Navassa Guano Co., Wilmington, N. C.		Johnston County Bone and Potash.	9.64				4.84	13.52
1384	Royster, F. S., Guano Co., Norfolk, Va.		Royster's Bone and Potash Mixture	10.98				4.98	14.86
1476	Union Guano Co., Winston, N. C.		Union 10-5 Bone and Potash.	10.26				4.58	13.81
1404	Va.-Car. Chemical Co., Richmond, Va.		Va. State Fertilizer Co.'s Mountain Top Pilot Mountain Bone and Potash.	10.11				4.13	13.27
Brands claiming									
1372	Asheville Packing Co., Asheville, N. C.		Asheville Packing Co.'s Superior Potash and Wheat Fertilizer.	9.64				6.35	15.03
1348	Royster, F. S., Guano Co., Norfolk, Va.		Royster's Bone and Potash Mixture	10.00				6.00	15.00
1402	United States Fertilizer Co., Baltimore, Md.		Farm Bell Acid and Potash.	12.57				4.56	16.14
			Mount Airy	10.04				5.90	14.94
			Mount Airy	11.71				5.95	16.49
Brands claiming									
1389	American Agricultural Chemical Co., New York, N. Y.		Detrick's High Grade Bone and Potash.	12.00				5.00	15.80
			Mount Airy	13.20				2.81	14.69

1358	Ober, G., & Sons Co., Baltimore, Md.	Ober's Standard Potash Compound	Pilot Mountain	13.12	5.07	16.88
1415	United States Fertilizer Co., Baltimore, Md.	Farm Bell Phospho-Potasse	Siler City	11.25	4.57	14.69
1385	Va.-Car. Chemical Co., Richmond, Va.	Goodman's Special Potash Mixture	Mount Airy	14.57	4.31	17.42
1417	-----do-----	V.-C. C. Co.'s High Grade Potash Mixture	Burlington	13.81	3.79	16.25
Brand claiming						
5312	Union Guano Co., Winston, N. C.	Union Dissolved Animal Bone	Winston	13.00	2.06	20.35
					2.00	19.98

RAW OR UNMIXED FERTILIZER MATERIALS.

Brands claiming						
1483	Richmond Guano Co., Richmond, Va.	Old Homestead Dissolved Bone	Mocksville	12.00		9.60
1515	Union Guano Co., Winston, N. C.	Union Acid Phosphate	Rural Hall	12.42		9.70
Brands claiming						
1464	Caraleigh Phosphate and Fertilizer Works, Raleigh, N. C.	Sterling Acid Phosphate	Waynesville	13.00		9.94
1487	Farmers Guano Co., Raleigh, N. C.	Farmers' Acid Phosphate	Cooleemee	14.15		10.40
1484	Richmond Guano Co., Richmond, Va.	Premium Dissolved Bone	Mocksville	15.97		11.32
1519	Va.-Car. Chemical Co., Richmond, Va.	Travers & Co.'s Standard Dissolved Bone	Elkin	13.33		12.68
Brands claiming						
1447	American Agricultural Chemical Co., New York, N. Y.	Zell's Acid Phosphate	Hillsboro	14.48		10.66
1511	Imperial Co., Norfolk, Va.	High Grade Tennessee Acid Phosphate	Mount Gilead	14.00		11.58
1510	Norfolk Fertilizer Co., Norfolk, Va.	Oriana 14 Per Cent Acid Phosphate	Troy	15.31		11.20
1430	Pocomoke Guano Co., Norfolk, Va.	Peerless Acid Phosphate	Maiden	16.82		12.25
1486	Powhatan Chemical Co., Richmond, Va.	High Grade Acid Phosphate	Mocksville	14.14		13.46
1429	Royster, F. S., Guano Co., Norfolk, Va.	Royster's 14 Per Cent Acid Phosphate	Maiden	16.02		11.31
				14.24*		12.82
				14.52		11.39
						11.62

ANALYSES OF COMMERCIAL FERTILIZERS—FALL SEASON, 1912.

Laboratory Number.	Name and Address of Manufacturer.	Name of Brand.	Where Sampled.	Percentage Composition or Parts per 100.					Relative Value per Ton at Factory.
				Available Phosphate	Water-soluble Nitrogen.	Organic Nitrogen.	Total Nitrogen.	Equivalent to Ammonia.		Total Potash.
RAW OR UNMIXED FERTILIZER MATERIALS.									
Brands claiming									
1432	Swift Fertilizer Works, Atlanta, Ga.	Swift's Cultivator High Grade Acid Phosphate.	Maiden	14.00					\$ 11.20
1543	Union Guano Co., Winston, N. C.	Union High Grade Acid Phosphate.	Cornelius	14.18					11.34
1544	Va.-Car. Chemical Co., Richmond, Va.	Old Dominion High Grade Acid Phosphate.	Statesville	14.56					11.65
1542	do	Red Cross Acid Phosphate.	Statesville	14.72					11.78
1465	do	V-C. C. Co.'s 14 Per Cent Acid Phosphate.	Marshville	14.47					11.58
Brands claiming									
1365	American Agricultural Chemical Co., New York, N. Y.	Lazaretto 16 Per Cent Acid Phosphate.	Hickory	15.37					12.30
1497	Armour Fertilizer Works, Atlanta, Ga.	Armour's Acid Phosphate.	Elkin	16.00					12.80
1463	Asheville Packing Co., Asheville, N. C.	Asheville Packing Co.'s High Grade Acid Phosphate.	Asheville	16.92					13.54
1343	Atlantic Chemical Co., Norfolk, Va.	Atlantic High Grade Acid Phosphate.	Elkin	16.77					13.42
1455	Baugh & Sons Co., Norfolk, Va.	Baugh's 16 Per Cent Acid Phosphate.	Statesville	17.27					13.82
1500	Carolina Warehouse Co., Salisbury, N. C.	Farmers' Union 16 Per Cent Acid Phosphate.	Gastonia	16.17					12.94
1512	Farmers Guano Co., Raleigh, N. C.	16 Per Cent Acid Phosphate.	Troy	15.54					12.43
1523	Imperial Guano Co., Norfolk, Va.	High Grade Acid Phosphate.	Concord	16.52					13.22
1366	Navassa Guano Co., Wilmington, N. C.	Navassa 16 Per Cent Acid Phosphate.	Rutherfordton	16.66					13.33
1350	Patapsco Guano Co., Baltimore, Md.	Florida Soluble Phosphate.	China Grove	17.09					13.67
				16.04					12.83
				17.07					13.66

1431	Pocomoke Guano Co., Norfolk, Va.	Superb Acid Phosphate	Maiden	16.71			13.37
1485	Powhatan Chemical Co., Richmond, Va.	Magic Dissolved Bone Phosphate	Mocksville	16.39			13.11
1351	Royster, F. S., Guano Co., Norfolk, Va.	Royster's High Grade 16 Per Cent Acid Phosphate.	Concord	15.42			12.24
1433	Swift Fertilizer Works, Atlanta, Ga.	Swift's Special High Grade Acid Phosphate.	Maiden	16.20			12.96
1500	Tuscarora Fertilizer Co., Atlanta, Ga.	Tuscarora Acid Phosphate.	Siler City	15.66			12.53
1532	Union Guano Co., Winston, N. C.	Union 16 Per Cent Acid Phosphate	Croft	16.55			13.24
1382	Va.-Car. Chemical Co., Richmond, Va.	Davie & Whittle's Owl Brand High Grade Acid Phosphate.	Mooresville	16.25			13.00
1477	do	Durham Fertilizer Co.'s Best Acid Phosphate.	Charlotte	16.55			13.24
1435	do	Southern Chemical Co.'s Comet 16 Per Cent Acid Phosphate.	Maiden	16.36			13.09
1434	do	V.-C. C. Co.'s 16 Per Cent Acid Phosphate.	Iron	16.77			13.40
Brands claiming							
1535	Union Guano Co., Winston, N. C.	Genuine German Kainit.	Croft			12.00	9.60
1391	Va.-Car. Chemical Co., Richmond, Va.	do	Henderson			12.45	9.96
1488	do	do	Salisbury			12.60	10.08
Brand claiming							
1420	Va.-Car. Chemical Co., Richmond, Va.	Muriate of Potash	Graham			12.54	10.03
Brands claiming							
1523	German Kali Works, Baltimore, Md.	Muriate of Potash	Elkin			48.00	38.40
1501	Tuscarora Fertilizer Co., Atlanta, Ga.	do	Siler City			51.64	41.31
						50.00	40.00
						49.33	39.94
						51.20	40.95

II. BRANDS REGISTERED—FALL SEASON, 1912.

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
<i>The Atlantic Chemical Corporation, Norfolk, Va.—</i>			
Pure Raw Bone Meal.....Total	21.50	3.71	....
Atlantic High Grade 16 Per Cent Acid Phos- phate	16.00	....	....
Atlantic 14 Per Cent Acid Phosphate	14.00	....	....
Atlantic Dissolved Bone.....	13.00	....	....
Atlantic Acid Phosphate.....	12.00	....	....
Atlantic 11 and 5 Bone and Potash Mixture..	11.00	....	5.00
Atlantic 10 and 5 Bone and Potash Mixture...	10.00	....	5.00
Atlantic 10 and 4 Bone and Potash Mixture..	10.00	....	4.00
Atlantic Bone and Potash for Grain.....	10.00	....	3.00
Atlantic Bone and Potash Mixture.....	10.00	....	2.00
Atlantic Meal Compound	9.00	2.27	2.00
Atlantic Cotton Grower	9.00	2.06	1.00
Corona Cotton Compound.....	9.00	1.65	3.00
Atlantic Special Guano.....	9.00	1.65	1.00
Atlantic Grain Guano.....	9.00	.82	3.00
Atlantic Fish Guano.....	9.00	.82	3.00
Atlantic Special Truck Guano.....	8.00	3.30	4.00
Oriental High Grade Guano.....	8.00	3.30	4.00
Paloma Tobacco Guano.....	8.00	3.30	4.00
Boon's Special Guano	8.00	2.47	4.00
Atlantic High Grade Tobacco Guano.....	8.00	2.47	3.00
Atlantic High Grade Cotton Guano.....	8.00	2.47	3.00
Atlantic Tobacco Grower.....	8.00	2.06	3.00
Atlantic Tobacco Compound.....	8.00	2.06	2.00
Atlantic Special Wheat Fertilizer.....	8.00	1.65	2.00
Atlantic Soluble Guano.....	8.00	1.65	2.00
Atlantic Soluble Guano for Tobacco	8.00	1.65	2.00
Apex Peanut Grower.....	8.00	1.02	4.00
Atlantic 8 and 5 Bone and Potash Mixture...	8.00	....	5.00
Atlantic 8 and 4 Bone and Potash Mixture...	8.00	....	4.00
Atlantic 7 Per Cent Truck Guano.....	7.00	5.77	7.00
Atlantic Potato Guano.....	7.00	4.12	5.00
Perfection Peanut Grower	7.00	....	5.00
Atlantic Side Dresser.....	4.00	8.22	4.00
Atlantic Special Top Dresser.....	4.00	6.18	2.50
Nitrate of Soda .....	....	15.22	....
Atlantic Top Dresser .....	....	7.42	3.00
Sulphate of Potash.....	....	....	48.00
Muriate of Potash.....	....	....	48.00
Genuine German Kainit.....	....	....	12.00

Geo. L. Arps & Co., Norfolk, Va.—

Arps' H. G. 16 Per Cent Acid Phosphate.....	16.00	....	....
14 Per Cent Acid Phosphate.....	14.00	....	....
Arps' 10 and 4 Bone and Potash Mixture...	10.00	....	4.00
Arps' 10 and 2 Bone and Potash Mixture...	10.00	....	2.00
Arps' "Go-a-Head" Guano for Trucks, Cotton and Tobacco	8.00	3.30	4.00
Arps' Quick Growth for All Crops.....	8.00	2.47	3.00
Arps' Premium Guano for Cotton, Tobacco and All Spring Crops.....	8.00	1.65	2.00
Arps' Big Yield Guano.....	8.00	1.65	2.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Arps' Standard Truck Guano.....	7.00	4.12	6.00
Arps' Potato Guano.....	6.00	5.76	5.00
Arps' Scuppernong Guano for Trucks.....	6.00	4.12	7.00
Genuine German Kainit.....	....	....	12.00

*Atlantic Fertilizer Company, Atlanta, Ga.; Wil-
mington, N. C.; Chester, S. C.—*

Atlantic "N" High Grade Acid Phosphate....	16.00	....	....
Atlantic "O" High Grade Acid Phosphate....	14.00	....	....
Atlantic "P" Standard Grade Acid Phosphate.	13.00	....	....
Atlantic "A" High Grade Guano.....	10.00	2.47	3.00
Atlantic "G" High Grade Guano.....	10.00	1.65	2.00
Atlantic "K" High Grade Phosphate and Pot- ash	10.00	....	4.00
Atlantic "M" Standard Grade Phosphate and Potash	10.00	....	2.00
Atlantic "D" High Grade Guano.....	9.00	1.65	3.00
Atlantic "F" Cotton-seed Meal Comp. H. G....	9.00	1.65	3.00
Atlantic "B" High Grade Guano.....	8.00	3.29	4.00
Atlantic "C" High Grade Guano.....	8.00	2.47	3.00
Atlantic "E" Cotton-seed Meal Comp. H. G...	8.00	2.47	3.00
Atlantic "H" Standard Grade Guano.....	8.00	1.65	2.00
Atlantic "I" Standard Grade Guano.....	8.00	....	4.00
Atlantic "L" Standard Grade Phosphate and Potash	8.00	....	4.00
Atlantic Nitrate of Soda.....	....	14.82	....
Atlantic Muriate of Potash.....	....	....	50.00
Atlantic Sulphate of Potash.....	....	....	49.00
Atlantic German Kainit.....	....	....	12.00

Acme Manufacturing Co., Wilmington, N. C.—

16 Per Cent Acid Phosphate.....	16.00	....	....
Acme High Grade Acid Phosphate.....	14.00	....	....
Acme Acid Phosphate.....	13.00	....	....
Acme Bone and Potash.....	12.00	....	6.00
Acme Bone and Potash.....	12.00	....	5.00
Acme Bone and Potash.....	12.00	....	4.00
Acme Bone and Potash.....	12.00	....	3.00
Acme Bone and Potash.....	12.00	....	2.00
Acme Bone and Potash.....	11.00	....	6.00
Acme Bone and Potash.....	11.00	....	5.00
Acme Bone and Potash.....	11.00	....	4.00
Acme Bone and Potash.....	11.00	....	3.00
Acme Bone and Potash.....	11.00	....	2.00
Acme Melon Grower.....	10.00	3.30	5.00
Acme Bone and Potash.....	10.00	....	6.00
Acme Bone and Potash.....	10.00	....	5.00
Acme Bone and Potash.....	10.00	....	4.00
Acme Bone and Potash.....	10.00	....	3.00
Acme Bone and Potash.....	10.00	....	2.00
Acme Cotton Grower.....	9.00	2.27	2.00
Acme Special Fertilizer for Cotton.....	8.00	4.12	7.00
Acme Plumb Good Fertilizer.....	8.00	3.30	6.00
Acme "OK" Fertilizer.....	8.00	3.30	4.00
Acme "OK" Fertilizer for Tobacco.....	8.00	3.30	4.00
Quickstep Fertilizer	8.00	3.30	4.00
Quickstep Fertilizer for Tobacco.....	8.00	3.30	4.00
Acme Crop Grower.....	8.00	2.47	4.00
Currie's High Grade Fertilizer.....	8.00	2.47	4.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Acme Crop Grower for Tobacco.....	8.00	2.47	4.00
Best's Fish Scrap Guano for Tobacco.....	8.00	2.47	3.00
Best's Fish Scrap Guano.....	8.00	2.47	3.00
Pee Dee Special Fertilizer.....	8.00	2.47	3.00
Pee Dee Special for Tobacco.....	8.00	2.47	3.00
Acme S-3-3 C. S. M. Guano.....	8.00	2.47	3.00
Acme S-3-3 C. S. M. Guano for Tobacco.....	8.00	2.47	3.00
Acme Plant Food.....	8.00	2.47	2.50
Acme Fertilizer for Tobacco.....	8.00	2.47	2.50
Acme Fertilizer	8.00	2.47	2.50
Tiptop Crop Grower.....	8.00	2.06	3.00
Tiptop Tobacco Grower.....	8.00	2.06	3.00
Lattimer's Complete Fertilizer.....	8.00	2.06	2.50
Acme Standard Guano.....	8.00	2.06	2.00
Best's Complete Fertilizer.....	8.00	2.06	2.00
Cotton-seed Meal Guano.....	8.00	1.65	2.00
Gem Fertilizer	8.00	1.65	2.00
Cotton-seed Meal Guano for Tobacco.....	8.00	1.65	2.00
Gem Fertilizer for Tobacco.....	8.00	1.65	2.00
Acme Special Grain Fertilizer.....	8.00	1.65	2.00
Acme Bone and Potash.....	8.00	....	6.00
Acme Bone and Potash.....	8.00	....	5.00
Acme Bone and Potash.....	8.00	....	4.00
Acme Root Crop Guano.....	7.00	4.12	7.00
Acme Standard Truck Guano.....	7.00	4.12	5.00
Acme High Grade Guano.....	6.00	4.94	8.00
Acme Truck Grower.....	6.00	3.30	8.00
Acme Corn Guano.....	6.00	2.47	3.00
Dried Fish Scrap.....	4.50	8.02	....
Acme Special 4-10-4 Guano.....	4.00	8.25	4.00
Clark's Corn Guano.....	1.00	6.58	10.00
Sulphate of Ammonia.....	....	20.56	....
Nitrate of Soda.....	....	14.81	....
Acme Top Dresser.....	....	7.40	3.00
Sulphate of Potash.....	....	....	48.00
Muriate of Potash.....	....	....	48.00
High Grade German Kainit 16 Per Cent.....	....	....	16.00
Genuine German Kainit.....	....	....	12.00

Ashepoo Fertilizer Co., Charleston, S. C.—

High Grade Ashepoo Dissolved Phosphate...	16.00	....	....
High Grade Ashepoo Acid Phosphate.....	14.00	....	....
High Grade Ashepoo XXXX Acid Phosphate.....	14.00	....	....
High Grade Eutaw Acid Phosphate.....	14.00	....	....
Standard Ashepoo XXX Acid Phosphate....	13.00	....	....
Standard Carolina Acid Phosphate.....	13.00	....	....
Standard Circle Bone.....	13.00	....	....
Standard Ashepoo Dissolved Bone.....	12.00	....	....
H. G. Ashepoo Bone and Potash.....	12.00	....	2.00
Standard Ashepoo Acid Phosphate and Potash.....	12.00	....	1.00
Standard Eutaw Acid Phosphate and Potash.....	12.00	....	1.00
Standard Eutaw XX Acid Phosphate.....	12.00	....	....
Standard Coomassie Acid Phosphate.....	12.00	....	....
Standard Ashepoo XX Acid Phosphate.....	12.00	....	....
Standard Ashepoo Potash and Acid Phosphate.....	11.00	....	1.00
Standard Eutaw Potash Acid Phosphate....	11.00	....	1.00
Standard Palmetto Potash Acid Phosphate..	11.00	....	1.00
High Grade Ashepoo Watermelon Guano.....	10.00	3.29	5.00
H. G. Ashepoo Cantaloupe Guano.....	10.00	2.46	10.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
H. G. Ashepoo Fruit Fertilizer.....	10.00	1.65	6.00
H. G. Ashepoo Golden Fertilizer.....	10.00	1.65	2.00
H. G. Eutaw Superpotash Acid Phosphate...	10.00	....	4.00
Standard Ashepoo Potash Compound.....	10.00	....	3.00
Standard Enoree Acid Phosphate and Potash.	10.00	....	2.00
Standard Ashepoo Wheat and Oats Specific..	9.50	1.65	1.00
Standard Ashepoo Fertilizer.....	9.00	1.85	1.00
Standard Eutaw Fertilizer.....	9.00	1.85	1.00
Standard Ashepoo Harrow Brand Raw Bone Superphosphate	9.00	1.65	2.00
Standard Eutaw XXX Guano.....	9.00	1.65	2.00
Standard Ashepoo Guano.....	8.50	2.06	1.00
Standard Eutaw XX Guano.....	8.50	1.65	2.00
Standard Ashepoo XX Guano.....	8.50	1.65	2.00
High Grade Ashepoo Fruit Grower.....	8.00	3.91	2.75
High Grade Ashepoo Perfection Guano.....	8.00	3.29	6.00
High Grade Ashepoo Guano.....	8.00	3.29	4.00
High Grade Ashepoo Cotton Fertilizer.....	8.00	2.46	3.00
High Grade Ashepoo XX Ammoniated Super- phosphate	8.00	2.46	3.00
High Grade Eutaw Special Cotton-seed Meal Guano	8.00	2.46	4.00
High Grade Eutaw X Golden Fertilizer.....	8.00	2.46	4.00
High Grade Ashepoo Bird and Fish Guano...	8.00	2.46	3.00
High Grade Ashepoo Meal Mixture.....	8.00	2.46	3.00
High Grade Ashepoo X Tobacco Fertilizer...	8.00	2.46	3.00
High Grade Ashepoo Golden Tobacco Pro- ducer	8.00	2.46	3.00
High Grade Carolina XXX Guano.....	8.00	2.46	3.00
H. G. Ashepoo Special C. S. M. Guano.....	8.00	2.46	2.00
High Grade Ashepoo Ammoniated Superphos- phate	8.00	2.46	2.00
High Grade Ashepoo Farmers' Special.....	8.00	2.06	3.00
Standard Eutaw Circle Guano.....	8.00	2.06	2.00
Standard Ashepoo Circle Guano.....	8.00	2.06	2.00
Standard Coomassie Circle Fertilizer.....	8.00	1.65	2.00
Standard Carolina Guano.....	8.00	1.65	2.00
Standard P. D. Fertilizer.....	8.00	1.65	2.00
Standard Ashepoo XXX Guano.....	8.00	1.65	2.00
Standard Ashepoo XXX Meal Guano.....	8.00	1.65	2.00
Standard Ashepoo Special Fertilizer.....	8.00	1.65	2.00
Standard Bronwood Acid Phosphate.....	8.00	....	4.00
High Grade Ashepoo Truck Guano.....	7.00	4.12	5.00
High Grade Ashepoo Vegetable Guano.....	5.00	4.12	5.00
High Grade Ashepoo Nitrogenous Top Dress- ing	3.00	7.00	2.00
Nitrate of Soda.....	....	14.81	....
Muriate of Potash.....	....	....	45.00
German Kainit .....	....	....	12.00

*The Armour Fertilizer Works, Atlanta, Chicago,
and Wilmington—*

Bone Meal	Total	24.00	2.47	....
Armour's Raw Bone Meal.....	Total	22.00	3.70	....
17 Per Cent Acid Phosphate.....		17.00	....	....
16 Per Cent Acid Phosphate.....		16.00	....	....
15 Per Cent Acid Phosphate.....		15.00	....	....
Star Phosphate		14.00	....	....
13 Per Cent Acid Phosphate.....		13.00	....	....
12 Per Cent Acid Phosphate.....		12.00	....	....

Name and Address of Manufacturer and Name of Brand.	Avall. Phos. Acid.	Nitrogen.	Potash.
Sampson Corn Mixture.....	11.00	....	5.00
Fertilizer, No. 1045.....	10.00	3.30	5.00
Fertilizer, No. 1044.....	10.00	3.30	4.00
Fertilizer, No. 1033.....	10.00	2.47	3.00
Fertilizer, No. 1025.....	10.00	1.65	5.00
Fertilizer, No. 1023.....	10.00	1.65	3.00
Armour's Wheat Grower.....	10.00	1.65	2.00
Phosphate and B. Potash.....	10.00	....	6.00
Phosphoric Acid and Potash.....	10.00	....	5.00
Superphosphate and Potash.....	10.00	....	4.00
M. H. White & Co.'s Special Corn Mixture...	10.00	....	2.00
Phosphate and Potash, No. 1.....	10.00	....	2.00
Armour's Tobacco Champion.....	9.00	2.47	3.00
African Cotton Grower.....	9.00	2.47	3.00
Johnson's High Grade.....	9.00	2.05	5.00
Armour's Bright Tobacco Grower.....	9.00	1.65	3.00
Bone and Dissolved Bone with Potash.....	9.00	1.65	3.00
Fertilizer, No. 913.....	9.00	.82	3.00
Armour's Phosphate and Potash.....	9.00	....	3.00
Standard Cotton Grower.....	8.50	1.65	2.00
Bone, Blood and Potash.....	8.00	4.11	7.00
Van Lindley's Special.....	8.00	4.11	2.00
Fertilizer, No. 846.....	8.00	3.30	6.00
Fertilizer, No. 844.....	8.00	3.30	4.00
Special Trucker	8.00	3.30	4.00
Sunrise Fertilizer, No. 844.....	8.00	3.30	4.00
All Soluble	8.00	2.88	4.00
Truck and Berry Special.....	8.00	2.47	10.00
Armour's S36 for Tobacco.....	8.00	2.47	6.00
Fertilizer, No. S36.....	8.00	2.47	6.00
Fertilizer, No. S34.....	8.00	2.47	4.00
Fertilizer, No. S33.....	8.00	2.47	3.00
Sunrise Fertilizer, No. S33.....	8.00	2.47	3.00
Underwood's Favorite	8.00	2.47	3.00
Cotton Special	8.00	2.47	3.00
Tobacco Special	8.00	2.47	3.00
Carolina Cotton Grower.....	8.00	2.47	2.00
Berry King	8.00	2.05	4.00
Sunrise Cotton Grower.....	8.00	2.05	3.00
Gold Medal for Tobacco.....	8.00	2.05	3.00
Sweet Potato Special.....	8.00	2.05	3.00
Champion	8.00	2.05	2.50
King Cotton	8.00	2.05	2.00
High Grade Potato.....	8.00	1.65	10.00
Fruit and Root Crop Special.....	8.00	1.65	5.00
Carolina Cotton Special.....	8.00	1.65	3.00
Sunrise Tobacco Grower.....	8.00	1.65	3.00
Sunrise Standard	8.00	1.65	2.00
Slaughter House for Tobacco.....	8.00	1.65	2.00
Armour's Slaughter House Fertilizer.....	8.00	1.65	2.00
General	8.00	1.65	2.00
Fertilizer, No. S13.....	8.00	.82	3.00
Phosphate and Potash, No. 2.....	8.00	....	5.00
Phosphate and Potash, No. 3.....	8.00	....	4.00
7 Per Cent Trucker.....	6.00	5.76	5.00
5 Per Cent Trucker.....	6.00	4.11	7.00
Manure Substitute	6.00	3.30	4.00
10 Per Cent Trucker.....	5.00	8.24	3.00
Top Dresser	5.00	8.24	2.00
Armour's Top Dresser.....	4.00	6.18	2.50

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Special Formula for Tobacco.....	4.00	3.30	5.00
Harvey's Special	4.00	3.30	4.00
10 Per Cent Tankage.....	2.00	8.24	....
Armour's Top Dresser.....	....	7.40	3.00
Nitrate of Soda.....	....	14.81	....
Dried Blood .....	....	13.16	....
Armour's Top Dresser.....	....	7.83	4.00
Sulphate of Potash.....	....	....	50.00
Muriate of Potash.....	....	....	50.00
Kainit .....	....	....	12.00

American Fertilizer Co., Norfolk, Va.—

Bone Meal	Total	22.50	3.71	....
American High Grade Acid Phosphate.....		16.00	....	....
High Grade Acid Phosphate.....		14.00	....	....
Eagle Brand Acid Phosphate.....		13.00	....	....
Double Extra Bone and Potash.....		12.00	....	5.00
Acid Phosphate		12.00	....	....
American Standard Cotton Grower.....		10.00	1.65	2.00
American Formula for Wheat and Corn.....		10.00	....	5.00
Double Dissolved Bone and Potash.....		10.00	....	4.00
Dissolved Bone and Potash for Corn and Wheat		10.00	....	2.00
Special Formula Guano for Yellow Leaf To- bacco		9.00	2.88	5.00
Pitt County Special Fertilizer.....		9.00	2.88	5.00
Capital King Cotton Grower.....		9.00	2.26	2.00
American Bone Mixture		9.00	.83	2.00
Bone and Peruvian Guano.....		9.00	1.65	2.00
Blood and Bone Compound.....		8.50	2.06	1.00
Peruvian Mixture		8.50	1.65	1.50
Peruvian Mixture Guano Especially Prepared for Sweet Potatoes		8.00	3.29	5.00
N. C. and S. C. Cotton Grower.....		8.00	3.29	4.00
American Eagle Guano		8.00	2.47	3.00
J. G. Miller & Co.'s Yellow Leaf Fertilizer...		8.00	2.47	3.00
American No. 1 Fertilizer.....		8.00	2.06	3.00
Bob White Fertilizer for Tobacco.....		8.00	2.06	2.50
A. L. Hannah's Special Formula.....		8.00	1.65	2.00
Bone and Peruvian Guano.....		8.00	1.65	2.00
American No. 2 Fertilizer.....		8.00	1.65	2.00
American Special Potash Mixture for Wheat.		8.00	....	4.00
10 Per Cent Ammoniated Guano.....		7.00	8.24	2.50
American 7-7-7 for Irish Potatoes.....		7.00	5.76	7.00
Standard 7 Per Cent Ammonia Guano.....		7.00	5.76	5.00
Special Potato Guano		7.00	4.12	7.00
American Irish Potato Grower.....		7.00	4.12	5.00
American Fish Scrap Guano.....		7.00	3.29	4.00
Stable Manure Substitute		7.00	2.47	4.00
Special Potato Manure		6.00	4.12	7.00
Nitrate of Soda .....		....	14.83	....
Ground Fish Scrap .....		....	8.24	....
Muriate of Potash .....		....	....	49.00
Sulphate of Potash .....		....	....	48.00
Genuine German Kainit .....		....	....	12.00

Atlantic Fertilizer Co., Atlanta, Ga.—

Atlantic Acid Phosphate H. G.....	16.00	....	....
Atlantic Acid Phosphate H. G.....	14.00	....	....
Atlantic Cotton and Corn Fertilizer H. G....	10.00	3.29	4.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Atlantic Cotton and Corn Fertilizer H. G....	10.00	2.47	3.00
Atlantic Cotton and Corn Fertilizer H. G....	10.00	1.65	2.00
Atlantic Cotton and Corn Fertilizer S. G....	10.00	.82	3.00
Atlantic Acid and Potash Mixture H. G....	10.00	....	4.00
Atlantic Acid and Potash Mixture S. G....	10.00	....	2.00
Atlantic Cotton and Corn Fertilizer H. G....	9.00	2.47	3.00
Atlantic Cotton and Corn Fertilizer H. G....	9.00	1.65	3.00
Atlantic Cotton-seed Meal Compound H. G....	9.00	1.65	3.00
Atlantic Truck Fertilizer H. G....	8.00	4.12	7.00
Atlantic Cotton and Corn Fertilizer H. G....	8.00	3.29	4.00
Atlantic Cotton and Corn Fertilizer H. G....	8.00	2.47	5.00
Atlantic Cotton and Corn Fertilizer H. G....	8.00	2.47	3.00
Atlantic Cotton-seed Meal Compound H. G....	8.00	2.47	3.00
Atlantic Cotton and Corn Fertilizer S. G....	8.00	1.65	3.00
Atlantic Cotton and Corn Fertilizer S. G....	8.00	1.65	2.00
Atlantic Grain Fertilizer Ammoniated G....	8.00	.82	4.00
Atlantic Acid and Potash Mixture H. G....	8.00	....	6.00
Atlantic Acid and Potash Mixture S. G....	8.00	....	4.00
Atlantic Nitrate of Soda.....	....	14.82	....
Atlantic Muriate of Potash.....	....	....	50.00
Atlantic German Kainit .....	....	....	12.00

*American Agricultural Chemical Co., Baltimore
and New York—*

A. A. C. Co.'s 16 Per Cent Superphosphate....	16.00		
Canton Chemical 16 Per Cent Acid Phosphate.	16.00	....	....
Detrick's 16 Per Cent Acid Phosphate.....	16.00	....	....
Lazaretto 16 Per Cent Acid Phosphate.....	16.00	....	....
Zell's 16 Per Cent Acid Phosphate.....	16.00	....	....
Lazaretto 14 Per Cent Acid Phosphate.....	14.00	....	....
Canton Chemical 14 Per Cent Acid Phosphate.	14.00	....	....
Detrick's XXtra Acid Phosphate.....	14.00	....	....
Zell's 14 Per Cent Acid Phosphate.....	14.00	....	....
Zell's 13 Per Cent Acid Phosphate.....	13.00	....	....
Detrick's H. G. Bone and Potash.....	12.00	....	5.00
Zell's H. G. Bone and Potash.....	12.00	....	5.00
Zell's H. G. Bone and Potash.....	10.00	....	4.00
Detrick's H. G. Bone and Potash.....	10.00	....	4.00
Canton Chemical Soluble Phosphate and Potash	10.00	....	4.00
Lazaretto H. G. Alkaline Bone.....	10.00	....	4.00
Zell's Bone and Potash.....	10.00	....	2.00
Lazaretto Alkaline Bone.....	10.00	....	2.00
Detrick's Bone and Potash.....	10.00	....	2.00
Canton Chemical Soluble Phosphate and Potash	10.00	....	2.00
A. A. C. Co.'s Top Notch Special.....	9.00	2.47	7.00
A. A. C. Co.'s Special Tobacco Fertilizer....	9.00	2.47	3.00
A. A. C. Co.'s High Grade C. S. M. Compound.	9.00	2.26	2.00
Zell's Royal High Grade Fertilizer.....	9.00	2.06	2.00
Detrick's Superior Animal Bone Fertilizer...	9.00	1.85	4.00
Canton Chemical Animal Bone Fertilizer....	9.00	1.85	4.00
Zell's Victoria Animal Bone Compound.....	9.00	1.85	4.00
Lazaretto Retriever Animal Bone Fertilizer..	9.00	1.85	4.00
Zell's Empire Cotton Compound.....	9.00	1.65	3.00
A. A. C. Co.'s Harvest Queen.....	9.00	1.65	2.00
Zell's Hustler Phosphate	9.00	.82	3.00
Pacific Guano for Tobacco.....	8.50	2.47	2.50
Reese's Potato and Truck Special.....	8.00	3.29	7.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Zell's Popular Tobacco Manure.....	8.00	3.29	4.00
A. A. C. Co.'s Palmetto C. S. M. Compound...	8.00	3.29	4.00
Canton Chemical Bono Tobacco Fertilizer....	8.00	3.29	4.00
Zell's Economizer Cotton Food.....	8.00	3.29	4.00
Detrick's Kangaroo Komplete Kompond Special High Grade.....	8.00	3.29	4.00
Lazaretto Carolina Cotton Food.....	8.00	3.29	4.00
Detrick's Kangaroo Komplete Kompond....	8.00	3.29	3.00
A. A. C. Co.'s Excelsior Compound for Tobacco	8.00	2.47	5.00
Detrick's Gold Eagle Cotton Comp.....	8.00	2.47	4.00
Detrick's Kangaroo Komplete Kompond for Tobacco	8.00	2.47	4.00
Lazaretto King of the Harvest.....	8.00	2.47	4.00
Zell's Tobacco Fertilizer	8.00	2.47	4.00
Canton Chemical Honest Protector.....	8.00	2.47	4.00
Canton Chemical Gladiator Cotton Fertilizer.	8.00	2.47	3.00
A. A. C. Co.'s Eureka Cotton-seed Meal Compound	8.00	2.47	3.00
Detrick's Special Tobacco Fertilizer.....	8.00	2.47	3.00
Canton Chemical Baker's Tobacco Fertilizer.	8.00	2.47	3.00
Canton Chemical Superior High Grade Fertilizer	8.00	2.47	3.00
Detrick's Victory Cotton Fertilizer.....	8.00	2.47	3.00
Detrick's Kangaroo Komplete Kompond Bright Tobacco Grower	8.00	2.47	3.00
Detrick's Kangaroo Komplete Kompond for Cotton	8.00	2.47	3.00
Zell's Bright Tobacco Grower.....	8.00	2.47	3.00
Zell's Reliance High Grade Manure.....	8.00	2.47	3.00
Lazaretto New Rival Cotton Fertilizer.....	8.00	2.47	3.00
Lazaretto Special Tobacco and Potato Fertilizer	8.00	2.47	3.00
Lazaretto Challenge Fertilizer	8.00	2.47	3.00
Lazaretto Carolina Tobacco Fertilizer.....	8.00	2.47	3.00
Canton Chemical CCC Special Compound....	8.00	2.06	6.00
Zell's "Square Deal" for Tobacco.....	8.00	2.06	3.00
Slingluff's British Mixture	8.00	2.06	2.50
Canton Chemical Baker's Fish Guano.....	8.00	1.65	2.00
Canton Chemical Game Guano.....	8.00	1.65	2.00
Detrick's Royal Crop Grower.....	8.00	1.65	2.00
Detrick's Fish Mixture.....	8.00	1.65	2.00
Lazaretto Crop Grower.....	8.00	1.65	2.00
Zell's Special Compound for Tobacco.....	8.00	1.65	2.00
Zell's Calvert Guano	8.00	1.65	2.00
Zell's Fish Guano	8.00	1.65	2.00
Reese's Pacific Guano	8.00	1.65	2.00
A. A. C. Co.'s Regal Crop Grower.....	8.00	.82	3.00
A. A. C. Co.'s Palmetto Alkaline Phosphate...	8.00	....	4.00
Lazaretto Early Trucker	7.00	4.11	5.00
A. A. C. Co.'s Blood, Bone and Fish Compound	7.00	3.29	5.00
Lazaretto Truckers' Favorite	6.00	5.76	5.00
Lazaretto Empire Trucker	6.00	4.11	7.00
A. A. C. Co.'s Nitrate of Soda.....	....	15.00	....
A. A. C. Co.'s Baltimore Top Dresser.....	....	7.41	3.00
A. A. C. Co.'s Muriate of Potash.....	....	....	49.00
A. A. C. Co.'s Genuine German Kainit.....	....	....	12.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
<i>American Agricultural Chemical Co., Farmers Fertilizer Works, Spartanburg, S. C.—</i>			
Red Rooster Acid Phosphate.....	16.00	....	....
Red Rooster Acid Phosphate.....	14.00	....	....
Red Rooster Bone and Potash.....	13.00	....	6.00
Red Rooster Bone and Potash.....	12.00	....	6.00
Red Rooster Fertilizer	10.00	3.30	4.00
Red Rooster Truck Guano.....	10.00	3.30	4.00
Red Rooster Fertilizer	10.00	2.47	3.00
Red Rooster Blood, Bone, and Potash.....	10.00	2.47	2.00
Red Rooster Money Maker.....	10.00	1.85	3.00
Red Rooster Blood, Bone and Potash Ferti- lizer	10.00	1.65	8.00
Red Rooster Cotton Grower.....	10.00	1.65	3.00
Red Rooster Fertilizer.....	10.00	1.65	2.00
Red Rooster Grain Grower.....	10.00	.82	5.00
Red Rooster Bone and Potash.....	10.00	....	4.00
Red Rooster Bone and Potash.....	10.00	....	2.00
Red Rooster Blood and Bone.....	9.00	1.65	3.00
Red Rooster Beats All Fertilizer.....	9.00	1.65	2.00
Red Rooster Fertilizer	8.00	3.30	8.00
Red Rooster Fertilizer	8.00	3.30	4.00
Red Rooster Truck Guano.....	8.00	3.30	4.00
Red Rooster Farmers' Favorite Fertilizer....	8.00	2.47	3.00
Red Rooster Fertilizer	8.00	2.05	1.00
Red Rooster Corn Grower.....	8.00	1.65	5.00
Red Rooster Special Corn Mixture.....	8.00	1.65	4.00
Red Rooster Fertilizer	8.00	1.65	2.00
Red Rooster Bone and Potash.....	8.00	....	4.00
Red Rooster Potato Fertilizer.....	7.00	3.30	5.00
Red Rooster Special Garden Grower.....	7.00	2.47	4.00
Red Rooster Lawn Grower.....	7.00	2.47	4.00
Red Rooster Top Dresser.....	5.00	5.75	3.00

*American Agricultural Chemical Co., Dixie Guano
Branch, Spartanburg, S. C.—*

Dixie Acid Phosphate	16.00	....	....
Dixie Acid Phosphate	14.00	....	....
Dixie Bone and Potash.....	13.00	....	6.00
Dixie Fertilizer	10.00	3.30	4.00
Dixie Fertilizer	10.00	2.47	3.00
Dixie Blood, Bone and Potash.....	10.00	2.47	2.00
Dixie Cotton Grower	10.00	1.65	3.00
Dixie Grain Grower	10.00	.82	5.00
Dixie Bone and Potash.....	10.00	....	4.00
Dixie Blood and Bone.....	9.00	1.65	3.00
Dixie Fertilizer	9.00	1.65	2.00
Dixie Fertilizer	8.00	3.30	4.00
Dixie Fertilizer	8.00	2.47	3.00
Dixie Fertilizer	8.00	2.05	1.00
Dixie Special Corn Mixture.....	8.00	1.65	4.00
Dixie Fertilizer	8.00	1.65	2.00
Dixie Bone and Potash.....	8.00	....	4.00
Dixie Lawn Grower	7.00	2.47	4.00
Dixie Special Garden Grower.....	7.00	2.47	4.00
Dixie Top Dresser	5.00	5.75	3.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
<i>American Agricultural Chemical Co., Homestead Fertilizer Branch, Spartanburg, S. C.—</i>			
Homestead Acid Phosphate	16.00	....	....
Homestead Acid Phosphate	14.00	....	....
Homestead Bone and Potash.....	13.00	....	6.00
Homestead Fertilizer	10.00	3.30	4.00
Homestead Fertilizer	10.00	2.47	3.00
Homestead Fertilizer	10.00	2.47	2.00
Homestead Blood, Bone and Potash.....	10.00	2.47	2.00
Homestead Cotton Grower	10.00	1.65	3.00
Homestead Fertilizer	10.00	1.65	3.00
Homestead Bone and Potash.....	10.00	....	4.00
Homestead Fertilizer	9.00	1.65	3.00
Homestead Blood and Bone.....	9.00	1.65	3.00
Homestead Fertilizer	9.00	1.65	2.00
Homestead Fertilizer	8.00	3.30	4.00
Homestead Fertilizer	8.00	2.47	3.00
Homestead Fertilizer	8.00	2.05	1.00
Homestead Special Corn Mixture.....	8.00	1.65	4.00
Homestead Fertilizer	8.00	1.65	4.00
Homestead Fertilizer	8.00	1.65	2.00
Homestead Bone and Potash.....	8.00	....	4.00
Homestead Fertilizer	7.00	2.47	4.00
Homestead Special Garden Grower.....	7.00	2.47	4.00
Homestead Lawn Grower	7.00	2.47	4.00
Homestead Fertilizer	5.00	5.75	3.00
Homestead Top Dresser	5.00	5.75	3.00

A. D. Adair and McCarty Bros., Atlanta, Ga.—

Adair's High Grade Dissolved Bone, No. 16..	16.00		
A. and M. 15-4.....	15.00	....	4.00
A. and M. 13-4.....	13.00	....	4.00
McCarty's Potash Formula, No. 5.....	12.00	....	5.00
McCarty's Potash Formula, No. 4.....	12.00	....	4.00
McCarty's Potash Formula	12.00	....	2.00
Adair's Dissolved Bone	12.00	....	....
David Harum Extra High Grade Blood Guano.	10.00	3.30	4.00
Adair's H. G. Blood and Bone Guano.....	10.00	2.47	3.00
Special Wheat Compound	10.00	1.65	4.00
Special Corn Compound	10.00	1.65	4.00
Special Vegetable Compound	10.00	1.65	4.00
Special Potato Compound.....	10.00	1.65	4.00
Special Cotton Compound.....	10.00	1.65	4.00
Special Tomato Compound.....	10.00	1.65	4.00
Adair's Soluble Pacific Guano.....	10.00	1.65	2.00
McCarty's High Grade Cotton Grower C. S. M.	10.00	1.65	2.00
McCarty's High Grade Corn Grower C. S. M..	10.00	1.65	2.00
Old Time Fish Scrap Guano.....	10.00	1.65	2.00
McCarty's Wheat Special.....	10.00	.82	3.00
McCarty's Corn Special.....	10.00	.82	3.00
McCarty's Cotton Special.....	10.00	.82	3.00
Adair's H. G. Potash Comp., No. 10.....	10.00	....	10.00
Adair's Wheat and Corn Grower, No. 8.....	10.00	....	8.00
H. G. Potash Compound, No. 8.....	10.00	....	8.00
H. G. Potash Compound, No. 6.....	10.00	....	6.00
Adair's Wheat and Corn Grower, No. 6.....	10.00	....	6.00
Adair's Wheat and Corn Grower, No. 5.....	10.00	....	5.00
H. G. Potash Compound, No. 5.....	10.00	....	5.00
High Grade Potash Compound.....	10.00	....	4.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Adair's Wheat and Corn Grower.....	10.00	....	4.00
Adair's Formula	10.00	....	2.00
Dixie High Grade Soil Food.....	9.00	1.65	3.00
Adair's Blood, Bone and Tankage Guano.....	9.00	.82	2.00
Special Corn Grower.....	8.00	1.65	6.00
Special Wheat Grower.....	8.00	1.65	6.00
Special Potato Grower.....	8.00	1.65	6.00
Special Vegetable Grower.....	8.00	1.65	6.00
Standard Corn Grower.....	8.00	1.65	2.00
Planter's Soluble Fertilizer	8.00	1.65	2.00
Adair's Ammoniated Dissolved Bone.....	8.00	1.65	2.00
Golden Grain Compound	8.00	.82	3.00
Adair's Special Potash Mixture, No. 6.....	8.00	....	6.00
Adair's Special Potash Mixture, No. 5.....	8.00	....	5.00
Adair's Special Potash Mixture.....	8.00	....	4.00
Nitrate of Soda.....	....	15.00	....
Muriate of Potash.....	....	....	50.00

Asheville Packing Co., Asheville, N. C.—

Asheville Packing Co.'s Pure Bone Meal, Total	18.00	2.47	
Asheville Packing Co.'s H. G. Phosphoric Acid	16.00	....	....
Asheville Packing Co.'s Standard Phosphoric Acid	14.00	....	....
Asheville Packing Co.'s Extra H. G. Potash Mixture	13.00	....	4.00
Asheville Packing Co.'s Standard Phosphoric Acid	12.00	....	....
Asheville Packing Co.'s Celebrated Tankage, Total	10.00	4.12	....
Asheville Packing Co.'s Extra H. G. Fertilizer.	10.00	3.30	4.00
Asheville Packing Co.'s Blood and Bone.....	10.00	2.47	3.00
Asheville Packing Co.'s H. G. Cotton Special.	10.00	1.65	4.00
Asheville Packing Co.'s High Grade Biltmore Wheat Grower	10.00	1.65	3.00
Asheville Packing Co.'s H. G. Wheat, Corn and Oat Special	10.00	1.65	2.00
Asheville Packing Co.'s Standard Bone and Potash	10.00	.82	1.00
Asheville Packing Co.'s Superior Potato and Wheat Fertilizer	10.00	....	6.00
Asheville Packing Co.'s Special Potash Mixture	10.00	....	4.00
Asheville Packing Co.'s XXX Wheat Grower.	10.00	....	2.00
Asheville Packing Co.'s Standard Potato Fertilizer	9.00	.82	2.00
Asheville Packing Co.'s H. G. Vegetable Special	8.00	4.12	5.00
Asheville Packing Co.'s Corn and Vegetable Special	8.00	2.47	3.00
Asheville Packing Co.'s Special Tobacco and Vegetable Fertilizer	8.00	2.47	3.00
Asheville Packing Co.'s Fruit Special.....	8.00	1.65	6.00
Asheville Packing Co.'s Potato Special.....	8.00	1.65	6.00
Asheville Packing Co.'s Excelsior Potato Fertilizer	8.00	1.65	4.00
Asheville Packing Co.'s Complete Fertilizer..	8.00	1.65	2.00
Asheville Packing Co.'s Standard Corn and Wheat	8.00	.82	3.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Asheville Packing Co.'s Special Bone and Potash	8.00	....	4.00
Asheville Packing Co.'s H. G. Muriate of Potash .....	....	....	50.00
<i>Baugh & Sons Co., Phila., Pa., and Norfolk, Va.—</i>			
Baugh's Raw Bone Meal, Warranted Pure, Total	21.50	3.70	....
Baugh's 16 Per Cent Acid Phosphate.....	16.00	....	....
Baugh's Pure Bone and Muriate of Potash Mixture	15.00	2.47	5.00
Baugh's High Grade Acid Phosphate.....	14.00	....	....
Baugh's Pure Dissolved Animal Bones.....	13.00	2.06	....
Baugh's 12 and 5 Phosphate and Potash....	12.00	....	5.00
Baugh's High Grade Cotton and Truck Guano	10.00	1.65	2.00
Baugh's 10 and 8 Phosphate and Potash....	10.00	....	8.00
Baugh's Phosphate and Potash Mixture.....	10.00	....	4.00
Baugh's Soluble Alkaline Superphosphate....	10.00	....	2.00
Baugh's H. G. Potato Grower.....	8.00	3.30	10.00
Baugh's Fish, Bone and Potash.....	8.00	3.30	4.00
Baugh's Fruit and Berry Guano.....	8.00	2.47	10.00
Baugh's Special Tobacco Guano.....	8.00	2.47	5.00
Baugh's Grand Rapids High Grade Guano...	8.00	2.47	3.00
Baugh's Sweet Potato Guano for Sweet Potatoes, Peas and Melons.....	8.00	2.47	3.00
Baugh's High Grade Tobacco Guano.....	8.00	2.47	3.00
Baugh's Complete Animal Base Fertilizer...	8.00	1.65	5.00
Baugh's Fish Mixture.....	8.00	1.65	2.00
Baugh's Animal Base and Potash Compound for All Crops.....	8.00	1.65	2.00
Baugh's Wheat Fertilizer for Wheat and Grass	8.00	1.65	2.00
Baugh's Southern States Excelsior Guano....	8.00	1.00	3.00
Glover's Special Potato Guano.....	7.00	3.30	8.00
Baugh's Southern States Guano for Bright Tobacco	7.00	2.88	7.00
Baugh's Potato and Truck Special.....	7.00	2.88	7.00
Baugh's Strawberry Mixture.....	7.00	2.47	5.00
Baugh's Fine Ground Fish.....Total	6.87	8.23	....
Gilliam's Special Potato Guano.....	6.00	5.76	6.00
Baugh's 7 Per Cent Potato Guano.....	6.00	5.76	5.00
Baugh's Peruvian Guano Substitute for Potatoes and All Vegetables.....	6.00	4.12	7.00
Gilliam's 5-6-7	6.00	4.12	7.00
Baugh's Farmers' Friend Guano.....	6.00	4.12	5.00
Baugh's New Process 10 Per Cent Guano....	5.00	8.23	2.50
Baugh's Special Potato Manure.....	5.00	1.65	10.00
H. G. Tankage.....Total	4.00	7.40	....
Baugh's Wrapper Leaf Brand for Seed Leaf Tobacco	3.50	3.30	5.00
Sulphate of Ammonia .....	....	20.57	....
Nitrate of Soda .....	....	15.04	....
Fine Ground Dry Blood.....	....	13.17	....
Baugh's Soluble Top Dresser for All Crops..	....	8.23	3.00
Muriate of Potash .....	....	....	48.00
High Grade Sulphate of Potash.....	....	....	48.00
Genuine German Kainit .....	....	....	12.00

S. T. Beveridge & Co., Richmond, Va.—

Beveridge's Raw Ground Bone Meal.....Total	20.00	3.70	....
Beveridge's Thomas or Basic Slag.....Total	16.00	....	....

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
<i>Beta Fertilizer Co., Beta, N. C.—</i>			
Beta Grass and Grain.....	10.00	....	2.00
Beta H. G. Potato.....	8.00	3.30	10.00
Beta Potato and Truck.....	8.00	3.30	7.00
Beta Cotton Grower.....	8.00	2.50	3.00
Beta Corn Grower.....	8.00	1.65	2.00
<i>Baltimore Fertilizer Co., Baltimore, Md.—</i>			
Honest Acid Phosphate.....	16.00	....	....
Honest Acid Phosphate.....	14.00	....	....
Honest Bone and Potash.....	10.00	....	2.00
Honest Sweet Potato Grower.....	8.00	2.40	4.00
Honest Cotton Grower.....	8.00	2.40	3.00
Honest Ammoniated Bone.....	8.00	1.60	2.00
Honest Dixie Trucker.....	6.00	4.00	7.00
Honest Trucker.....	6.00	4.00	5.00
<i>Bowker Fertilizer Co., Baltimore, Md., and Boston, Mass.—</i>			
16 Per Cent Dissolved Bone Phosphate.....	16.00	....	....
Bowker's Soluble Phosphate.....	14.00	....	....
Golden Harvest Fertilizer.....	12.00	....	5.00
Imperial Alkaline Phosphate.....	10.00	....	4.00
Superphosphate with Potash for Grain and Grass.....	10.00	....	2.00
Bowker's H. G. C. S. M. Mixture.....	9.00	2.26	2.00
Animal Bone Fertilizer.....	9.00	1.85	4.00
Sure Crop Cotton-seed Meal Compound.....	8.00	3.29	4.00
Bowker's Red Oak Tobacco Fertilizer.....	8.00	2.47	7.00
Bowker's White Star Compound.....	8.00	2.47	4.00
Tobacco Fertilizer.....	8.00	2.47	3.00
Eureka Cotton Compound.....	8.00	2.47	3.00
Fish Guano.....	8.00	1.65	3.00
Excelsior C. S. M. Mixture.....	8.00	1.65	2.00
Empire Standard.....	8.00	1.65	2.00
Corn and Grain Grower.....	8.00	.82	4.00
Southern Special Compound.....	7.00	3.29	5.00
H. G. Top Dresser.....	....	7.41	3.00
<i>Blackstone Guano Co., Inc., Blackstone, Va.—</i>			
Clover Leaf 16 Per Cent Phosphate.....	16.00	....	....
Bone and Phosphate Half and Half.....	15.00	1.65	....
B. G. Co. Acid Phosphate.....	14.00	....	....
Clover Leaf for Grain.....	13.00	1.03	1.00
Dissolved Bone.....	10.00	1.03	1.00
B. G. Co., Inc., Bone and Potash.....	10.00	....	4.00
B. G. Co. Bone and Potash.....	10.00	....	2.00
Blackstone Special for Tobacco.....	9.00	2.47	3.00
Old Belefonte.....	8.00	3.30	2.00
Clover Leaf for Tobacco.....	8.00	2.47	3.00
Tobacco Special.....	8.00	2.47	3.00
Wrapper Brand.....	8.00	2.47	3.00
Jim Crow for Tobacco.....	8.00	2.47	3.00
Belefonte.....	8.00	2.47	2.00
Hard Cash for Tobacco.....	8.00	2.06	2.00
Carolina Special for Tobacco.....	8.00	1.65	4.00
Standard Guano.....	8.00	1.65	2.00
Red Letter for Tobacco.....	8.00	1.65	2.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Alliance for Tobacco.....	8.00	1.65	2.00
Leader for Tobacco.....	8.00	1.65	2.00
Peanut Special	8.00	1.03	6.00
Material for Special Order.....	....	4.95	....

Banner Fertilizer Co., Benson, N. C.—

Banner High Grade Acid Phosphate.....	16.00		
Banner Bone and Potash.....	10.00	....	5.00
Banner Cotton Grower.....	8.00	2.47	5.00
Banner Guano	8.00	2.47	3.00
Banner Corn Fertilizer	8.00	1.65	5.00
Banner Top Notch Guano.....	8.00	1.65	2.00
Nitrate Soda .....	....	18.00	....
Banner Muriate Potash.....	....	....	48.00
Banner German Kainit .....	....	....	12.00

C. J. Burton Guano Co., Baltimore, Md.—

Burton's 16 Per Cent Acid Phosphate.....	16.00	....	....
Burton's 14 Per Cent Acid Phosphate.....	14.00	....	....
Burton's Alkaline	10.00	....	4.00
Burton's Potash Mixture	10.00	....	2.00
Burton's High Grade Tobacco.....	8.00	3.29	4.00
Burton's Best	8.00	2.47	3.00
Tobacco Queen	8.00	2.47	3.00
Burton's High Grade.....	8.00	2.06	3.00
Burton's Butcher Bone.....	8.00	1.65	2.00

Bradley Fertilizer Co., Charleston, S. C.—

High Grade Bradley's Dissolved Phosphate..	16.00	....	....
High Grade Bradley's Acid Phosphate.....	14.00	....	....
Standard Bradley's XXX Acid Phosphate....	13.00	....	....
Standard Bradley's Acid Phosphate.....	12.00	....	....
Standard Bradley's Palmetto Acid Phosphate.	12.00	....	....
H. G. Bradley's Selected Guano.....	10.00	1.65	4.00
High Grade Bradley's Potash Acid Phosphate.	10.00	....	4.00
Standard Bradley's Wheat Grower.....	10.00	....	2.00
Standard Bradley's Bone and Potash.....	10.00	....	2.00
Standard B. D. Sea Fowl Guano.....	8.00	1.86	1.00
Standard Bradley's Ammoniated Dissolved Bone	9.00	1.85	1.00
Standard Bradley's Patent Superphosphate..	9.00	1.85	1.00
Standard Eagle Ammoniated Bone Superphos- phate	9.00	1.85	1.00
High Grade Bradley's Circle Guano.....	8.00	3.29	4.00
High Grade Bradley's Guano.....	8.00	2.46	3.00
Standard Bradley's Cereal Guano.....	8.00	1.65	2.00
Standard Bradley's X Guano.....	8.00	1.65	2.00
German Kainit .....	....	....	12.00

The Bryant Fertilizer Co., Alexander, Va.—

Bryant's Bone Meal.....Total	22.50	3.71	....
Bryant's Acid Phosphate.....	17.00	....	....
Bryant's Acid Phosphate.....	16.00	....	....
Bryant's S. C. Dissolved Bone.....	14.00	....	....
Bryant's H. G. Wheat Mixture.....	12.00	....	6.00
Parrish-Godwin's Dissolved Bone with Potash.	12.00	....	4.00
Bryant's Bone and Potash.....	10.00	....	4.00
Bryant's Bone and Potash Mixture.....	10.00	....	2.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Bryant's "Challenge" Highest Grade Tobacco Mixture	9.00	2.47	3.00
Bryant's Special Cotton-seed Meal Fertilizer..	9.00	2.26	2.00
Bryant's Bone Mixture for Tobacco.....	9.00	2.06	2.00
Carolina Wheat and Grain Guano.....	9.00	.82	3.00
Farmers' Mixture	8.75	1.85	4.00
Bryant's H. G. Tobacco Fertilizer.....	8.00	3.29	4.00
Bryant's Favorite C. S. M. Guano.....	8.00	2.47	3.00
Bryant's H. G. Fertilizer.....	8.00	2.47	3.00
Bryant's "Victor" Tobacco Fertilizer.....	8.00	2.47	3.00
Bryant's Choice C. S. M. 3 Per Cent Mixture.	8.00	2.47	2.00
Bryant's Tobacco Fertilizer.....	8.00	2.06	3.00
Bryant's "Otter" Special Tobacco Fertilizer..	8.00	2.06	3.00
Bryant's Cotton and Corn Fertilizer.....	8.00	2.06	2.00
Bryant's Special Fertilizer for Tobacco.....	8.00	2.06	2.00
Bryant's Cotton Grower.....	8.00	1.65	2.00
Bryant's Special Fertilizer.....	8.00	1.65	2.00
Bryant's Cotton-seed Meal Guano.....	8.00	1.65	2.00
Bryant's "Potomac" Bone Special for Tobacco.	8.00	1.65	2.00
Bryant's Special Formula for Grain and Grass	8.00	.82	4.00
Bryant's Wheat Mixture.....	8.00	....	4.00
Bryant's Truck Grower.....	7.00	5.76	7.00
Bryant's Fish Scrap Guano.....	7.00	3.29	4.00
Bryant's Carolina Top Dresser.....	6.00	5.76	5.00
Bryant's High Grade Top Dresser.....	4.00	8.23	4.00
Bryant's Top Dresser.....	4.00	6.17	2.50
Bryant's Special Top Dresser.....	2.00	5.76	2.50
Nitrate of Soda.....	....	14.82	....
Blood .....	....	13.15	....
H. G. Tankage.....	....	8.25	....
Fish Scrap .....	....	8.24	....
Bryant's Carolina Special Top Dresser.....	....	7.41	3.00
Muriate of Potash.....	....	....	48.00
Sulphate of Potash.....	....	....	48.00
Genuine German Kainit.....	....	....	12.00

The Berkley Chemical Co., Norfolk, Va.—

Pure Ground Bone.....Total	20.00	3.70	....
Resolute Acid Phosphate.....	16.00	....	....
Berkley Acid Phosphate.....	14.00	....	....
Berkley 12-5 Bone and Potash.....	12.00	....	5.00
Berkley Bone and Potash Mixture.....	11.00	....	2.00
Berkley Plant Food.....	10.00	....	4.00
Laurel Potash Mixture.....	10.00	....	2.00
Monitor Animal Bone Fertilizer.....	9.00	1.85	4.00
Select Crop Grower.....	8.50	2.06	2.50
Victory Special Crop Grower.....	8.00	3.29	4.00
Berkley Tobacco Guano.....	8.00	2.47	3.00
Advance Crop Grower.....	8.00	2.47	3.00
Brandon Superphosphate	8.00	1.65	2.00
Long Leaf Tobacco Grower.....	8.00	1.65	2.00
Berkley Peanut and Grain Grower.....	8.00	1.00	4.00
Superior Bone and Potash.....	8.00	....	4.00
Mascot Truck Guano.....	7.00	4.11	5.00
Royal Truck Grower.....	6.00	5.76	5.00
The Leader of the World.....	5.00	3.29	5.00
Berkley Top Dresser.....	4.00	8.23	2.00
Nitrate of Soda.....	....	15.00	....
Dry Ground Fish.....	....	8.23	....

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Muriate of Potash.....			49.00
Sulphate of Potash.....			48.00
Genuine German Kainit.....			12.00

Bragaw Fertilizer Co., Washington, N. C.—

16 Per Cent Acid.....	16.00	....	....
Palmetto Acid Phosphate.....	14.00	....	....
Long Acre Bone Phosphate.....	14.00	....	....
Farmers' Union Meal Mixture.....	9.00	2.26	2.00
Beaufort County Guano.....	8.00	2.47	3.00
Havana Tobacco Guano.....	8.00	2.47	3.00
Tuckahoe Tobacco Guano.....	8.00	2.06	3.00
Old Reliable Premium Guano.....	8.00	1.65	2.00
Tar Heel Guano.....	8.00	1.65	2.00
Pamlico Trucker.....	7.00	4.12	8.00
7-5-5 Truck Guano.....	7.00	4.12	5.00
Riverview Potato Grower.....	6.00	5.76	5.00
Chocowinity Special Tobacco Guano.....	5.00	3.29	6.00
Sunrise Tobacco Guano.....	4.00	2.47	5.00
Genuine German Kainit.....	....	....	12.00

Conestee Chemical Co., Wilmington, N. C.—

16 Per Cent Acid Phosphate.....	16.00	....	....
Conestee High Grade Acid Phosphate.....	14.00	....	....
Conestee Acid Phosphate.....	13.00	....	....
Conestee Bone and Potash.....	12.00	....	6.00
Conestee Bone and Potash.....	12.00	....	5.00
Conestee Bone and Potash.....	12.00	....	4.00
Conestee Bone and Potash.....	12.00	....	3.00
Conestee Bone and Potash.....	12.00	....	2.00
Conestee Bone and Potash.....	11.00	....	6.00
Conestee Bone and Potash.....	11.00	....	5.00
Conestee Bone and Potash.....	11.00	....	4.00
Conestee Bone and Potash.....	11.00	....	3.00
Conestee Bone and Potash.....	11.00	....	2.00
Conestee Bone and Potash.....	10.00	....	6.00
Conestee Bone and Potash.....	10.00	....	5.00
Conestee Bone and Potash.....	10.00	....	4.00
Conestee Bone and Potash.....	10.00	....	3.00
Conestee Bone and Potash.....	10.00	....	2.00
Conestee Cotton Grower.....	9.00	2.27	2.00
Conestee Special Fertilizer for Cotton.....	8.00	4.12	7.00
Conestee Melon Grower.....	8.00	4.12	7.00
Conestee O. K. Fertilizer for Tobacco.....	8.00	3.30	4.00
Conestee P. D. Q. Fertilizer.....	8.00	3.30	4.00
Conestee "O. K." Fertilizer.....	8.00	3.30	4.00
Conestee P. D. Q. Fertilizer for Tobacco.....	8.00	3.20	4.00
Conestee Plumb Good Fertilizer.....	8.00	2.47	4.00
Conestee Crop Grower for Tobacco.....	8.00	2.47	4.00
Conestee Fish Scrap Guano for Tobacco.....	8.00	2.47	3.00
Conestee 8-3-3 C. S. M. Guano.....	8.00	2.47	3.00
Conestee 8-3-3 C. S. M. Guano for Tobacco...	8.00	2.47	3.00
Conestee Fish Scrap Guano.....	8.00	2.47	3.00
Conestee Special Fertilizer.....	8.00	2.47	3.00
Conestee Special Tobacco Fertilizer.....	8.00	2.47	3.00
Conestee Fertilizer for Tobacco.....	8.00	2.47	2.50
Conestee Fertilizer.....	8.00	2.47	2.50
Conestee Crop Grower.....	8.00	2.06	3.00
Conestee Tobacco Grower.....	8.00	2.06	3.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Conestee Complete Fertilizer.....	8.00	2.06	2.00
Conestee Special Grain Fertilizer.....	8.00	1.65	2.00
Conestee Standard Guano for Tobacco.....	8.00	1.65	2.00
Conestee Standard Guano.....	8.00	1.65	2.00
Cotton-seed Meal Guano for Tobacco.....	8.00	1.65	2.00
Cotton-seed Meal Guano.....	8.00	1.65	2.00
Conestee Bone and Potash.....	8.00	....	6.00
Conestee Bone and Potash.....	8.00	....	5.00
Conestee Bone and Potash.....	8.00	....	4.00
Conestee Root Crop Guano.....	7.00	4.12	7.00
Conestee Standard Truck Guano.....	7.00	4.12	5.00
Conestee High Grade Guano.....	6.00	4.94	8.00
Conestee Truck Grower.....	6.00	3.30	8.00
Conestee Corn Guano.....	6.00	2.47	3.00
Dried Fish Scrap.....	4.50	8.02	....
Conestee Special Top Dresser.....	4.00	8.25	4.00
Sulphate of Ammonia.....	....	20.56	....
Nitrate of Soda.....	....	14.81	....
Conestee Top Dresser.....	....	7.40	3.00
Muriate of Potash.....	....	....	48.00
Sulphate of Potash.....	....	....	48.00
H. G. German Kainit 16 Per Cent.....	....	....	16.00
Genuine German Kainit.....	....	....	12.00

Columbia Guano Co., Norfolk, Va.—

Raw Bone Meal.....Total	21.50	3.71	....
Columbia High Grade 16 Per Cent Acid Phosphate	16.00	....	....
Columbia 14 Per Cent Acid Phosphate.....	14.00	....	....
Columbia Dissolved Bone.....	13.00	....	....
Columbia Acid Phosphate.....	12.00	....	....
Columbia 11 and 5 Bone and Potash Mixture.	11.00	....	5.00
Columbia 10½ and 1½ Bone and Potash Mixture	10.50	....	1.50
Columbia 10 and 5 Bone and Potash Mixture.	10.00	....	5.00
Columbia 10 and 4 Bone and Potash Mixture.	10.00	....	4.00
Columbia Bone and Potash for Grain.....	10.00	....	3.00
Columbia Bone and Potash Mixture.....	10.00	....	2.00
Columbia C. S. M. Special.....	9.00	2.27	2.00
Parrish's Special	9.00	2.06	5.00
Roanoke Ammoniated Guano.....	9.00	1.65	3.00
Carolina Soluble Guano.....	9.00	1.65	1.00
Columbia Grain Guano.....	9.00	.82	3.00
Columbia Special 1-9-2 Guano.....	9.00	.82	2.00
Tobacco King	8.00	3.30	5.00
Pelican Ammoniated Guano.....	8.00	3.30	4.00
Columbia Special Truck Guano.....	8.00	3.30	4.00
Trojan Tobacco Guano.....	8.00	3.30	4.00
Columbia Special 4-8-3.....	8.00	3.30	3.00
Olympia Cotton Guano.....	8.00	2.47	3.00
Hyco Tobacco Guano.....	8.00	2.47	3.00
Our Best Meal Guano.....	8.00	2.47	3.00
Cozart's Tobacco Special.....	8.00	2.29	6.00
Royal Tobacco Fertilizer.....	8.00	2.06	3.00
Columbia Special Tobacco Guano.....	8.00	2.06	2.00
Yelverton Bros.' Plant Food for Tobacco.....	8.00	2.00	5.00
Columbia Guano Soluble for Tobacco.....	8.00	1.65	2.00
Columbia Special Wheat Fertilizer.....	8.00	1.65	2.00
Columbia Soluble Guano.....	8.00	1.65	2.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Spinola Peanut Grower.....	8.00	1.02	4.00
Columbia 8 and 4 Bone and Potash Mixture..	8.00	....	4.00
Columbia Special 7 Per Cent Truck Guano...	7.00	5.77	7.00
Columbia Potato Guano.....	7.00	4.12	5.00
Crown Brand Peanut Guano.....	7.00	....	5.00
Columbia Side Dresser.....	4.00	8.22	4.00
Columbia Special Top Dresser.....	4.00	6.18	2.50
Nitrate of Soda.....	....	15.22	....
Columbia Top Dresser.....	....	7.42	3.00
Sulphate of Potash.....	....	....	48.00
Muriate of Potash.....	....	....	48.00
Genuine German Kainit.....	....	....	12.00

*Cumberland Phosphate Co., Portland, Me., and
Charleston, S. C.—*

Standard Cumberland Bone Superphosphate of Lime	9.00	1.85	1.00
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The Coe-Mortimer Co., Charleston, S. C.—

Gen. Key—Tree Brand Thomas Phosphate, Total	18.00		
Gen. Key—Tree Brand Thomas Phosphate, Total	17.50	....	....
Coe-Mortimer Co.'s Dissolved Bone.....	16.00	....	....
Coe-Mortimer Co.'s Dissolved Bone.....	14.00	....	....
Coe-Mortimer Co.'s Level Best.....	10.00	3.29	4.00
Coe-Mortimer Co.'s Progressive Farmer.....	10.00	2.47	3.00
Coe-Mortimer Co.'s Bone and Potash.....	10.00	....	4.00
Coe-Mortimer Co.'s Bone and Potash.....	10.00	....	2.00
Coe-Mortimer Co.'s Corn Club.....	9.25	2.05	2.00
Carolina Special	9.00	2.47	3.00
Coe-Mortimer Co.'s Excelsior.....	9.00	2.05	4.00
Coe-Mortimer Co.'s M. H. G.....	9.00	1.65	3.00
Knickerbocker Standard	9.00	1.65	2.00
Coe-Mortimer Co.'s Tar Heel.....	9.00	.82	3.00
Coe-Mortimer Co.'s Special Formula.....	8.50	1.65	2.00
E. Frank Co.'s Extra High Grade.....	8.00	4.11	7.00
Marcoe Guano	8.00	3.29	4.00
Coe-Mortimer Co.'s Tobacco Fertilizer.....	8.00	2.47	6.00
Coe-Mortimer Co.'s Tobacco Fertilizer.....	8.00	2.47	5.00
Coe-Mortimer Co.'s Tobacco Fertilizer.....	8.00	2.47	4.00
Darlington Guano	8.00	2.47	3.00
Coe-Mortimer Co.'s Cotton and Corn.....	8.00	2.05	3.00
Coe-Mortimer Co.'s Straight Goods.....	8.00	1.65	3.00
Mortimer's High Grade.....	7.00	4.11	5.00
Imported Ground Fish.....	6.87	9.27	11.25
High Grade Tankage.....	6.80	9.65	11.75
High Grade Tankage.....	6.80	7.62	9.25
Coe-Mortimer Co.'s Top Dresser.....	4.00	6.17	2.50
Nitrate of Soda.....	....	14.83	....
H. G. Dried Blood.....	....	14.00	17.00
H. G. Dried Blood.....	....	13.59	16.50
Muriate of Potash.....	....	....	49.00
Sulphate of Potash.....	....	....	49.00
Muriate Mixture .....	....	....	20.00
Genuine German Kainit.....	....	....	12.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
<i>Cooper Guano Co., Wilmington, N. C.—</i>			
Cooper's 16 Per Cent Acid Phosphate.....	16.00	....	....
Cooper's 14 Per Cent Acid Phosphate.....	14.00	....	....
Cooper's Grain Producer.....	10.00	....	4.00
Cooper's Grain Grower.....	10.00	....	2.00
Cooper's Recorder.....	9.00	1.65	2.00
Cooper's Kite.....	8.00	4.11	7.00
Cooper's Helmar.....	8.00	3.29	4.00
Cooper's Horto.....	8.00	3.29	4.00
Cooper's Tobacco Special.....	8.00	3.00	7.50
Cooper's Chadbourne Trucker.....	8.00	2.47	10.00
Cooper's Lenox.....	8.00	2.47	3.00
Cooper's Sunset C. S. M.....	8.00	2.47	3.00
Cooper's Clifford.....	8.00	2.47	3.00
Cooper's Swamp Fox.....	8.00	2.47	2.50
Cooper's Bunker Hill.....	8.00	2.06	3.00
Cooper's Crusoe.....	8.00	2.06	2.00
Cooper's Potato.....	8.00	1.65	10.00
Cooper's Bald Head Island.....	8.00	1.65	2.00
Cooper's Reward.....	8.00	1.65	2.00
Cooper's Waccamaw.....	8.00	1.65	2.00
Cooper's Sterling Complete.....	8.00	1.65	2.00
Cooper's Peanut Bouncer.....	8.00	.82	4.00
Cooper's Finis.....	7.00	4.11	5.00
Cooper's Top Dresser.....	4.00	10.00	4.00
Fish Scrap.....	....	10.00	....
Kainit.....	....	....	12.00
<i>Craven Chemical Co., New Bern, N. C.—</i>			
Panama 16 Per Cent Phosphate.....	16.00	....	....
Jewel Acid Phosphate.....	14.00	....	....
Turkey Trot Bone and Potash.....	12.00	....	6.00
Herring's Bone and Potash.....	12.00	....	5.00
Craven H. G. Bone and Potash.....	12.00	....	4.00
Foy's High Grade Bone and Potash Mixture.....	10.00	....	6.00
Craven Grain Compound.....	10.00	....	4.00
Trent Bone and Potash.....	10.00	....	2.00
Halifax Guano.....	9.00	2.47	3.00
Prolix 9-2-3 Special Guano.....	9.00	1.65	3.00
Hanover Standard Guano.....	8.00	3.29	4.00
Currituck Sweet Potato Guano.....	8.00	2.47	6.00
Craven Chemical Co.'s Standard Tobacco Guano.....	8.00	2.47	6.00
Hart's Special Tobacco Grower.....	8.00	2.47	3.00
Duplin Tobacco Guano.....	8.00	2.47	3.00
Gaston High Grade Fertilizer.....	8.00	2.47	3.00
C. E. Foy High Grade Guano.....	8.00	2.47	3.00
Marvel Great Crop Grower.....	8.00	2.06	3.00
Elite Cotton Guano.....	8.00	1.65	2.00
Pantego Potato Guano.....	7.00	4.12	7.00
Neuse Truck Grower.....	6.00	4.94	6.00
Craven Chemical Co.'s Truck Guano. 5-10-21½.....	5.00	8.24	2.50
Craven Chemical Co.'s Top Dresser A.....	4.00	8.24	4.00
Craven Chemical Co.'s Top Dresser B.....	4.00	6.18	2.50
Craven Chemical Co.'s Top Dresser C.....	....	7.41	3.00
Genuine German Kainit.....	....	....	12.00

William H. Camp, Petersburg, Va.—

Bone Meal.....Total	22.50	3.80	....
Camp's Acid Phosphate.....	16.00	....	....

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Camp's Acid Phosphate.....	14.00	....	....
Camp's Shepherd Brand Bone and Potash....	10.00	....	4.00
Camp's Yellow Head Chemicals.....	8.00	2.87	7.50
Camp's Special for Tobacco.....	8.00	2.46	3.00
Camp's Red Head Chemicals.....	8.00	2.25	2.00
Camp's Lion and Monkey.....	8.00	1.65	2.00
Cat and Rat Peanut Grower.....	8.00	1.00	4.00
Victory Corn Grower.....	8.00	1.00	2.00
Camp's Shepherd Brand Bone and Potash....	8.00	....	5.00
Camp's Green Head Chemicals.....	7.00	6.15	10.00
Camp's Above All.....	6.00	5.75	5.00
Nitrate of Soda.....	....	14.75	....
Muriate of Potash.....	....	....	48.00
German Kainit .....	....	....	12.00

Clayton Oil Mill, Clayton, N. C.—

C. O. M. 16 Per Cent Acid Phosphate.....	16.00		
C. O. M. High Grade Bone and Potash.....	12.00	....	5.00
C. O. M. Wheat Compound.....	10.00	2.05	4.50
C. O. M. Bone and Potash.....	10.00	....	5.00
Austin's Special	9.00	2.47	3.00
Way Side Special	9.00	1.65	4.00
C. W. H. Special.....	8.00	4.10	5.00
C. O. M. Cotton Grower.....	8.00	3.30	4.00
Clayton Guano	8.00	2.47	3.00
Clayton Special Tobacco Grower	8.00	2.47	3.00
Planters' Favorite	8.00	2.47	3.00
Cotton Queen	8.00	1.65	2.00
Summer Queen	8.00	1.65	2.00
C. O. M. Top Dresser.....	3.00	7.75	2.00
H. and W. D. Climax Top Dresser.....	....	12.75	....
Perfection Top Dresser.....	....	9.85	4.00
C. O. M. German Kainit.....	....	....	12.00

Catawba Fertilizer Co., Lancaster, S. C.—

Catawba High Grade Acid Phosphate.....	16.00	....	....
Catawba High Grade Acid Phosphate.....	14.00	....	....
Catawba Acid and Potash.....	12.00	....	5.00
Catawba Acid and Potash.....	12.00	....	4.00
Catawba Special	10.00	3.29	4.00
Catawba Farmers' King	10.00	1.65	5.00
Catawba Climax	10.00	1.65	2.00
Catawba Preference	10.00	1.65	2.00
Catawba Grain King.....	10.00	.82	4.00
Catawba Acid and Potash.....	10.00	....	4.00
Catawba Acid and Potash.....	10.00	....	2.00
Catawba Gold Medal.....	9.00	2.47	7.00
Catawba Farmers' Special.....	9.00	2.47	2.00
Catawba Farmers' Union.....	9.00	1.85	4.00
Catawba Economizer	9.00	1.65	2.00
Catawba Dixie	8.85	1.65	2.00
Catawba Old Hickory.....	8.00	3.29	6.00
Catawba Reliable	8.00	3.29	4.00
Catawba Electric	8.00	3.29	4.00
Catawba Farmers' Choice.....	8.00	2.47	5.00
Catawba Red Rose.....	8.00	2.47	3.00
Catawba Peerless	8.00	2.47	3.00
Catawba Red Star.....	8.00	2.47	3.00
Catawba Champion	8.00	2.05	3.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Catawba Standard	8.00	2.05	2.00
Catawba Eclipse	8.00	1.65	2.00
Catawba Acid and Potash.....	8.00	....	4.00
Catawba Cotton Producer.....	6.00	4.93	5.00
Catawba Top Dresser.....	4.00	6.16	2.50
Catawba Superior	4.00	5.75	7.00
Catawba Excelsior	4.00	5.75	4.00
Catawba Nitrate of Soda.....	....	15.00	....
Catawba Muriate of Potash.....	....	....	48.00
Catawba Kainit .....	....	....	12.00

Cowell, Swann & McCotter Co., Bayboro, N. C.—

16 Per Cent Acid Phosphate.....	16.00	....	....
Bone Phosphate	14.00	....	....
Standard Cotton Grower.....	8.00	3.30	3.00
Champion Guano	8.00	2.47	3.00
Cowell's Great Tobacco Grower.....	8.00	2.47	3.00
Special Tobacco Guano	8.00	2.47	3.00
Special Cotton Guano.....	8.00	2.47	3.00
Quick Grower Guano.....	8.00	2.06	3.00
Rust Proof Cotton Guano.....	8.00	1.65	3.00
Crop Guano	8.00	1.65	2.00
Great Cabbage and Potato Guano.....	7.00	5.77	7.00

Carolina Union Fertilizer Co., Norfolk, Va.—

Carolina Union Raw Bone Meal.....Total	21.00	3.71	
Carolina Union 16 Per Cent.....	16.00	....	....
Carolina Union 14 Per Cent.....	14.00	....	....
Carolina Union 10-5.....	10.00	....	5.00
Carolina Union 10-4.....	10.00	....	4.00
Carolina Union 10-2.....	10.00	....	2.00
Farmers' Union 2¼-9-4 Guano.....	9.00	1.85	4.00
Carolina Union 4-8-4.....	8.00	3.30	4.00
Carolina Union 3-8-3.....	8.00	2.47	3.00
Carolina Union 2½-8-3.....	8.00	2.06	3.00
Carolina Union 2-8-2.....	8.00	1.65	2.00
Carolina Union 8-4.....	8.00	....	4.00
Nitrate of Soda.....	....	14.85	....
Muriate of Potash.....	....	....	50.00
Genuine German Kainit .....	....	....	12.00

Chickamauga Fertilizer Works, Atlanta, Ga.—

Chickamauga High Grade Dissolved Bone, No. 16	16.00		
Chickamauga High Grade Dissolved Bone...	14.00	....	....
Chickamauga 13-4	13.00	....	4.00
Chickamauga Potash Special, No. 4.....	12.00	....	4.00
Chickamauga Potash Special	12.00	....	2.00
Chickamauga Dissolved Bone.....	12.00	....	....
Chickamauga Very Best Extra H. G. Guano..	10.00	3.30	4.00
Ben Hur H. G. Blood and Bone Guano.....	10.00	2.47	3.00
Special Potato Compound.....	10.00	1.65	4.00
Special Wheat Compound.....	10.00	1.65	4.00
Special Vegetable Compound.....	10.00	1.65	4.00
Special Corn Compound.....	10.00	1.65	4.00
Chickamauga High Grade Fertilizer.....	10.00	1.65	2.00
Chickamauga High Grade Plant Food.....	10.00	1.65	2.00
Chickamauga Fish Scrap Guano.....	10.00	1.65	2.00
Chickamauga Wheat Special.....	10.00	.82	3.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Chickamauga Corn Special.....	10.00	.82	3.00
Chickamauga Cotton Special.....	10.00	.82	3.00
Old Glory Mixture.....	10.00	.82	1.00
Chickamauga Wheat and Corn Grower. No. 8.	10.00	....	8.00
Chickamauga Wheat and Corn Grower. No. 6.	10.00	....	6.00
Chickamauga Wheat and Corn Grower. No. 5.	10.00	....	5.00
Chickamauga Wheat and Corn Grower.....	10.00	....	4.00
Chickamauga Bone and Potash.....	10.00	....	2.00
Chickamauga Blood, Bone and Tankage Guano	9.00	.82	2.00
Special Potato Grower.....	8.00	1.65	6.00
Special Wheat Grower.....	8.00	1.65	6.00
Special Vegetable Grower.....	8.00	1.65	6.00
Special Corn Grower.....	8.00	1.65	6.00
Chickamauga Complete Fertilizer.....	8.00	1.65	2.00
Chickamauga Standard Corn Grower.....	8.00	1.65	2.00
Chickamauga Standard Wheat Grower.....	8.00	1.65	2.00
Georgia Home Guano	8.00	1.65	2.00
No. 3 Bone, Tankage and Potash Mixture....	8.00	.82	3.00
Chickamauga Alkaline Bone, No. 6.....	8.00	....	6.00
Chickamauga Alkaline Bone, No. 5.....	8.00	....	5.00
Chickamauga Alkaline Bone	8.00	....	4.00
Nitrate of Soda.....	....	15.00	....
Muriate of Potash.....	....	....	50.00

Canton Fertilizer Co., Canton, Ga.—

Dissolved Bone	16.00	....	....
Dissolved Bone	14.00	....	....
R. T. Jones Extra II. G.....	10.00	2.47	3.00
Elberta Special	10.00	2.06	7.00
North Georgia High Grade.....	10.00	2.06	3.00
Ten Two Four.....	10.00	1.65	4.00
Southern King High Grade.....	10.00	1.65	2.00
Fish High Grade.....	10.00	1.65	2.00
Orange High Grade.....	10.00	1.65	2.00
Jomco High Grade.....	10.00	1.65	2.00
Quickstep Wheat and Grain Grower.....	10.00	.82	3.00
Special Potash Mixture.....	10.00	....	4.00
Jomco Standard Grade.....	8.00	1.65	2.00
Dissolved Bone and Potash.....	8.00	....	4.00
Jones' Premium Special.....	7.50	4.00	5.50
Nitrate of Soda.....	....	15.00	....
Muriate of Potash.....	....	....	48.00

The Chesapeake Chemical Co., Baltimore, Md.—

C. C. Co.'s Dissolved Phosphate.....	16.00	....	....
C. C. Co.'s Dissolved Phosphate.....	14.00	....	....
C. C. Co.'s Reliable Phosphate.....	10.00	....	4.00
C. C. Co.'s Celebrated Mixture.....	10.00	....	2.00
C. C. Co.'s Rapid Trucker.....	8.00	3.28	7.00
C. C. Co.'s High Grade Guano.....	8.00	3.28	4.00
C. C. Co.'s Excelsior Fertilizer.....	8.00	2.46	4.00
C. C. Co.'s Fish Guano.....	8.00	2.46	3.00
C. C. Co.'s Ammoniated Phosphate.....	8.00	1.64	3.00
C. C. Co.'s National Crop Grower.....	8.00	1.64	2.00
C. C. Co.'s Keystone Phosphate.....	7.00	3.28	5.00
C. C. Co.'s Potato Compound.....	6.00	4.10	5.00
C. C. Co.'s Prolific Top Dresser.....	....	7.51	3.50
C. C. Co.'s German Kainit.....	....	....	12.40

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
<i>Caraleigh Phosphate and Fertilizer Works, Raleigh, N. C.—</i>			
Raw Bone Meal.....Total	20.00	3.70	....
16 Per Cent Acid Phosphate.....	16.00	....	....
Climax Dissolved Bone.....	14.00	....	....
Sterling Acid Phosphate.....	13.00	....	....
Staple Acid Phosphate.....	12.00	....	....
Horne & Son's High Grade Bone and Potash.	11.00	....	5.00
Special Bone and Potash Mixture.....	10.00	....	4.00
Morris & Scarboro's Special Bone and Potash.	10.00	....	3.00
Electric Bone and Potash Mixture.....	10.00	....	2.00
Pacific Tobacco and Cotton Grower.....	9.00	2.26	2.00
Rhankatte Special Tobacco Guano.....	8.00	3.30	6.00
Special 8-4-4	8.00	3.30	4.00
Horne's Best	8.00	2.47	3.00
Eclipse Ammoniated Guano.....	8.00	2.47	3.00
Planter's Pride	8.00	2.06	3.00
Caraleigh Special Tobacco Guano.....	8.00	2.06	3.00
Eli Ammoniated Fertilizer.....	8.00	1.65	2.00
Crown Ammoniated Guano.....	8.00	1.65	2.00
Comet Guano	8.00	.82	3.00
Buncombe Corn Grower.....	8.00	....	4.00
Buncombe Wheat Grower.....	8.00	....	4.00
Caraleigh Top Dresser	3.00	8.23	4.00
Nitrate of Soda.....	....	15.63	....
Kanona Tankage .....	....	9.04	....
Sulphate of Potash.....	....	....	50.00
Muriate of Potash.....	....	....	50.00
Genuine German Kainit .....	....	....	12.00

Central Phosphate Co., Mount Pleasant, Tenn.—

Tennessee Phosphate	32.00	....	....
Tennessee Phosphate	28.00	....	....

Cheraw Fertilizer Co., Cheraw, S. C.—

Cheraw Perfection Acid Phosphate.....	16.00		
Cheraw High Grade Acid Phosphate.....	14.00	....	....
Cheraw Standard Acid Phosphate.....	13.00	....	....
Farmers' Mixture	8.00	3.29	4.00
Cheraw Perfection	8.00	3.29	4.00
Cheraw Special	8.00	3.29	4.00
Cheraw High Grade.....	8.00	2.47	3.00
Cheraw Excelsior	8.00	2.47	3.00
Cheraw Fish Mixture.....	7.00	3.29	3.00
Cheraw Complete	7.00	2.47	4.00
Farmers' Special Mixture.....	6.00	2.47	2.50
Nitrate of Soda .....	....	14.80	....
Muriate of Potash.....	....	....	48.00
German Kainit .....	....	....	12.00

Coweta Fertilizer Co., Norfolk, Va.—

Coweta 16 Per Cent Acid Phosphate.....	16.00		
Coweta High Grade Acid Phosphate.....	14.00	....	....
Coweta Acid Phosphate.....	13.00	....	....
Coweta Fish Guano.....	10.00	1.65	2.00
Coweta Standard Bone and Potash.....	10.00	....	4.00
Coweta Dissolved Bone and Potash.....	10.00	....	2.00
Coweta Animal Bone.....	8.00	3.29	4.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Sea Bird Standard Guano.....	8.00	2.47	3.00
Coweta Perfection Tobacco Grower.....	8.00	2.47	3.00
Coweta Royal Guano.....	8.00	2.06	3.00
Coweta Beef Blood and Bone.....	8.00	2.06	1.00
Coweta Success Guano.....	8.00	1.65	2.00
Coweta Special Bone and Potash.....	8.00	....	4.00
Coweta Standard Truck Guano.....	6.00	4.12	7.00
Nitrate of Soda .....	....	14.83	....
Cotton-seed Meal .....	....	6.17	....
Genuine German Kainit .....	....	....	12.00
Muriate of Potash .....	....	....	49.00

Carolina Warehouse Co., Salisbury, N. C.—

Farmers' Union Ground Phosphate Rock, Total	28.00	....	....
Farmers' Union 21.5-4.5 Bone Meal....Total	21.50	3.70	....
Farmers' Union 20-12 Bone and Potash.....	20.00	....	12.00
Farmers' Union 20-8 Bone and Potash.....	20.00	....	8.00
Farmers' Union Basic Slag.....Total	17.00	....	....
Farmers' Union 16 Per Cent Acid Phosphate.	16.00	....	....
Farmers' Union 14 Per Cent Acid Phosphate.	14.00	....	....
Farmers' Union Dissolved Animal Bone.....	13.00	2.06	....
Farmers' Union 13 Per Cent Acid Phosphate.	13.00	....	....
Farmers' Union 12-6 Bone and Potash.....	12.00	....	6.00
Farmers' Union 12-5 Bone and Potash.....	12.00	....	5.00
Farmers' Union 12-4 Bone and Potash.....	12.00	....	4.00
Farmers' Union 12-3 Bone and Potash.....	12.00	....	3.00
Farmers' Union 12 Per Cent Acid Phosphate.	12.00	....	....
Farmers' Union 10-3-3 Guano.....	10.00	3.47	3.00
Farmers' Union 10-4-4 Guano.....	10.00	3.29	4.00
Farmers' Union 10-2-2 Guano.....	10.00	1.65	2.00
Farmers' Union 10-6 Bone and Potash.....	10.00	....	6.00
Farmers' Union 10-5 Bone and Potash.....	10.00	....	5.00
Farmers' Union 10-4 Bone and Potash.....	10.00	....	4.00
Farmers' Union 10-3 Bone and Potash.....	10.00	....	3.00
Farmers' Union 10-2 Bone and Potash.....	10.00	....	2.00
Farmers' Union 9-2¼-4.....	9.00	1.85	4.00
Farmers' Union 9-2-3 Guano.....	9.00	1.65	3.00
Farmers' Union 9-1-3 Guano.....	9.00	.82	3.00
Farmers' Union 8-4-6 Guano.....	8.00	3.29	6.00
Farmers' Union 8-4-6 Tobacco Guano.....	8.00	3.29	6.00
Farmers' Union 8-4-4 Guano.....	8.00	3.29	4.00
Farmers' Union 8-3-5 Tobacco Guano.....	8.00	2.47	5.00
Farmers' Union 8-3-5 Guano.....	8.00	2.47	5.00
Farmers' Union 8-3-3 Guano.....	8.00	2.47	3.00
Farmers' Union 8-3-3 Tobacco Guano.....	8.00	2.47	3.00
Farmers' Union 8-2.5-3 Guano.....	8.00	2.06	3.00
Farmers' Union 8-2.5-3 Tobacco Guano.....	8.00	2.06	3.00
Farmers' Union 8-2.5-2 Guano.....	8.00	2.06	2.00
Farmers' Union 8-2.5-2 Tobacco Guano.....	8.00	2.06	2.00
Farmers' Union 8-2-10 Guano.....	8.00	1.65	10.00
Farmers' Union 8-2-3 Guano.....	8.00	1.65	3.00
Farmers' Union 8-2-2 Guano.....	8.00	1.65	2.00
Farmers' Union 8-2-2 Tobacco Guano.....	8.00	1.65	2.00
Farmers' Union 8-1-4 Guano.....	8.00	.82	4.00
Farmers' Union 8-1-3 Guano.....	8.00	.82	3.00
Farmers' Union 8-5 Bone and Potash.....	8.00	....	5.00
Farmers' Union 8-4 Bone and Potash.....	8.00	....	4.00
Farmers' Union 7-7-7 Guano.....	7.00	5.76	7.00
Farmers' Union 7-5-8 Guano.....	7.00	4.12	8.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Farmers' Union 7-5-5 Guano.....	7.00	4.12	5.00
Farmers' Union 7-5-5 Guano.....	7.00	3.29	5.00
Farmers' Union 4-7.5-2 Top Dresser.....	4.00	6.17	2.00
Farmers' Union Tankage.....Total	2.00	8.24	....
Farmers' Union Nitrate of Soda.....	....	15.00	....
Farmers' Union Dried Blood.....	....	13.00	....
Farmers' Union Fish Scrap.....	....	8.24	....
Farmers' Union Carolite Top Dresser.....	....	7.40	3.00
Farmers' Union Muriate of Potash.....	....	....	50.00
Farmers' Union Sulphate of Potash.....	....	....	50.00
Farmers' Union 12 Per Cent Kainit.....	....	....	12.00

Contentnea Guano Co., Wilson, N. C.—

High Grade 16 Per Cent Acid.....	16.00	....	....
Contentnea 14 Per Cent Acid.....	14.00	....	....
Bartholomew's Cotton Special.....	10.00	2.47	7.00
"Corn Club" Special.....	10.00	.82	5.00
Bone and Potash Mixture, No. 3.....	10.00	....	5.00
Bone and Potash Mixture, No. 2.....	10.00	....	4.00
Bone and Potash Mixture, No. 1.....	10.00	....	2.00
Contentnea Cotton Formula.....	9.00	2.25	2.00
Bartholomew's Cotton Grower.....	9.00	1.85	5.00
8-4½-7 for Tobacco.....	8.00	3.70	7.00
8-4½-7 for Cotton.....	8.00	3.70	7.00
Climax High Grade.....	8.00	3.30	4.00
High Grade Tobacco Grower.....	8.00	2.90	5.00
Howard & Williams' Cotton Special.....	8.00	2.88	5.00
Government Formula, No. 1.....	8.00	2.47	10.00
Bartholomew's Tobacco Special.....	8.00	2.47	7.00
Government Formula, No. 2.....	8.00	2.47	7.00
Victor Fertilizer for Tobacco.....	8.00	2.47	5.00
Farmers' Favorite Formula.....	8.00	2.47	4.00
Pick Leaf Tobacco Fertilizer.....	8.00	2.47	3.00
Top Notch Fertilizer.....	8.00	2.47	3.00
Matchless Cotton Grower.....	8.00	2.47	3.00
Contentnea Cotton Grower.....	8.00	2.47	2.50
Cotton Special	8.00	2.05	5.00
Contentnea Tobacco Special.....	8.00	2.05	3.00
Bragg Cotton Grower.....	8.00	2.05	3.00
Blood and Bone Cotton Compound.....	8.00	1.65	2.00
Bragg Corn Grower.....	8.00	.82	5.00
Special Formula for Truck.....	7.00	4.06	7.00
Contentnea Corn Special.....	5.00	1.65	5.00
High Grade Top Dresser.....	4.00	8.25	4.00
Special Top Dresser.....	4.00	6.60	4.00
Contentnea Top Dresser.....	3.00	8.25	5.00
Nitrate of Soda.....	....	14.82	....
Muriate of Potash.....	....	....	50.00
Sulphate of Potash.....	....	....	50.00
Manure Salts .....	....	....	20.00
H. G. 16 Per Cent German Kainit.....	....	....	16.00
German Kainit .....	....	....	12.00

C. E. Davis Packing Co., Reedville, Va.—

Upton's Trucker	8.00	4.12	5.00
Gilliam's 7 Per Cent Special.....	6.00	5.77	6.00
Upton's 7 Per Cent.....	6.00	5.77	5.00
Gilliam's Special 5 Per Cent.....	6.00	4.12	8.00
Upton's Special	6.00	4.12	7.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
<i>C. P. Dey, Beaufort, N. C.—</i>			
Ground Fish Scrap	7.00	8.23	....
<i>Dixie Guano Co., Durham, N. C.—</i>			
Dixie 16 Per Cent Acid Phosphate.....	16.00	....	....
Dixie 14 Per Cent Acid Phosphate.....	14.00	....	....
Dixie Champion for Wheat and Corn.....	10.50	....	1.50
Jeff Davis Special.....	9.00	2.26	2.00
Dixie Star Ammoniated.....	9.00	1.65	2.00
Dixie Corn Fertilizer.....	9.00	.82	3.00
Radium Brand Guano.....	8.00	3.28	5.00
Dixie Tobacco Fertilizer.....	8.00	2.46	3.00
Carolina Special Ammoniated.....	8.00	2.46	3.00
Sulky Plow Brand Guano.....	8.00	2.46	2.00
Battle's Blood and Bone Fertilizer.....	8.00	2.05	3.00
Niagara Soluble Bone.....	8.00	2.05	2.00
Dixie Cotton Fertilizer.....	8.00	1.65	2.00
Old Plantation Superphosphate.....	8.00	1.65	2.00
Nitrate of Soda.....	....	14.82	....
Muriate of Potash.....	....	....	48.00
Sulphate of Potash.....	....	....	48.00
Kainit .....	....	....	12.00
<i>The Dunn Oil Mill Co., Dunn, N. C.—</i>			
Uncle Zeb	9.50	2.75	5.00
Cepa Fear Leader.....	8.00	4.00	4.00
Bull of the Field.....	8.00	3.00	4.00
Dunn Hustler	8.00	3.00	3.00
Sampson Cotton Grower.....	8.00	2.00	2.00
<i>Dixie Guano Co., Inc., Suffolk, Va.—</i>			
Dixie Acid Phosphate.....	16.00	....	....
Dixie Acid Phosphate.....	14.00	....	....
Dixie Goodluck Brand.....	12.00	1.00	6.00
Dixie Alkaline Bone and Potash.....	11.00	....	2.00
Dixie Monticello Brand.....	10.00	1.00	2.00
Dixie Alkaline Bone and Potash.....	10.00	....	4.00
Dixie's Best	8.00	4.11	7.00
Dixie 8-4-4 Guano.....	8.00	3.29	4.00
Dixie Maximum Brand.....	8.00	2.47	4.00
Dixie High Grade.....	8.00	2.47	3.00
Dixie 8-2-5 Guano.....	8.00	1.65	5.00
Dixie Standard Guano.....	8.00	1.65	2.00
Dixie Jumbo Peanut Grower.....	8.00	1.00	4.00
Dixie 10 Per Cent Top Dresser.....	5.00	8.23	3.00
Dixie 7 Per Cent.....	5.00	5.66	4.00
Dixie Muriate Potash.....	....	....	48.00
Dixie Kainit .....	....	....	12.00
<i>Etiwan Fertilizer Co., Charleston, S. C.—</i>			
Etiwan 16 Per Cent Acid Phosphate.....	16.00	....	....
Etiwan High Grade Acid Phosphate.....	14.00	....	....
Etiwan Dissolved Bone.....	13.00	....	....
Diamond Soluble Bone.....	13.00	....	....
Etiwan Acid Phosphate with Potash.....	11.00	....	1.00
Plow Brand Acid Phosphate with Potash....	11.00	....	1.00
Etiwan Potash Bone.....	10.00	....	4.00
Etiwan Soluble Bone with Potash.....	10.00	....	3.00
Diamond Soluble Bone with Potash.....	10.00	....	2.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
XX Acid Phosphate with Potash.....	10.00	....	2.00
Etiwan Blood and Bone Guano.....	9.00	2.06	1.00
Plow Brand Raw Bone Superphosphate....	9.00	2.06	1.00
Etiwan 9-2-3 Per Cent Ammoniated Fertilizer.	9.00	1.65	3.00
Plow Brand Ammoniated Dissolved Bone....	9.00	1.65	2.00
Etiwan Superior Cotton Fertilizer.....	8.00	3.30	6.00
Etiwan Special Cotton Fertilizer.....	8.00	3.30	4.00
Plow Brand Special Tobacco Fertilizer.....	8.00	3.30	4.00
Etiwan Cotton Compound.....	8.00	2.47	3.00
Etiwan High Grade Cotton Fertilizer.....	8.00	2.47	2.00
Etiwan Ammoniated Fertilizer.....	8.00	1.65	2.00
Plow Brand Ammoniated Fertilizer.....	8.00	1.65	2.00
Etiwan Special Potash Mixture.....	8.00	....	4.00
Nitrate of Soda.....	....	14.82	....
Muriate of Potash.....	....	....	48.00
Genuine German Kainit.....	....	....	12.00

Elmore Gin and Fertilizer Co., Elmore, N. C.—

Elmore Cantaloupe Special.....	8.00	3.29	7.50
Elmore Standard Fertilizer.....	8.00	3.29	4.00
Elmore Cotton Fertilizer.....	8.00	2.47	3.00
Elmore X Fertilizer.....	6.50	2.47	2.50
Elmore Watermelon Special.....	5.50	3.29	10.00
Elmore Top Dresser.....	....	8.65	3.50
Elmore Corn Fertilizer.....	....	3.70	2.50

Eastern Cotton Oil Co., Hertford, N. C.—

Acid Phosphate	16.00	....	....
Acid Phosphate	14.00	....	....
"Ten-One-Four for Peanuts".....	10.00	.83	4.00
Bone Potash	10.00	....	4.00
Currituck Special for Yellow Sweets.....	8.00	3.29	6.00
Mat White Special.....	8.00	3.29	4.00
Farmers Sensation for Tobacco.....	8.00	2.47	3.00
It-grows Currituck Yellows.....	8.00	2.47	3.00
Rain-proof Cotton Grower.....	8.00	2.47	3.00
Magic Economy	8.00	2.06	3.00
Fish and Blood Mixture.....	8.00	1.65	2.00
Perquimans Favorite	8.00	1.65	2.00
Early Bird	7.00	4.12	5.00
Hertford Truck Grower.....	6.00	5.77	5.00
Tankage and Fish Substitute, Peruvian Guano for Truck	6.00	4.12	7.00
Nun-such Potato Grower.....	6.00	4.12	7.00
Nitrate of Soda.....	....	15.67	....
Fish Scrap .....	....	9.00	....
Sulphate of Potash.....	....	....	48.00
Muriate of Potash.....	....	....	48.00
Genuine German Kainit.....	....	....	12.00

*Farmers Guano Co., Raleigh, N. C., and Norfolk,
Va.—*

Raw Bone Meal	Total	20.00	3.70	....
16 Per Cent Acid Phosphate.....		16.00	....	....
14 Per Cent Acid Phosphate.....		14.00	....	....
Farmers Acid Phosphate.....		13.00	....	....
Special H. G. Bone and Potash.....		11.00	....	5.00
Farmers Grain Grower.....		10.00	1.03	2.00
Special Bone and Potash Mixture.....		10.00	....	4.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Century Bone and Potash Mixture.....	10.00	....	2.00
Farmers Blood and Bone.....	8.00	3.30	4.00
Big Crop Guano.....	8.00	2.88	5.00
Money Point Guano.....	8.00	2.47	3.00
Golden Grade Guano.....	8.00	2.47	3.00
Toco Tobacco Guano.....	8.00	2.06	3.00
Farmers Ammoniated Guano.....	8.00	1.65	2.00
State Standard Guano.....	8.00	1.65	2.00
Farmers Peanut Guano.....	8.00	1.03	4.00
Special Bone and Potash.....	8.00	....	4.00
Farmers 7 Per Cent Trucker.....	7.00	5.76	7.00
Farmers Challenge	7.00	4.12	5.00
Farmers Formula	7.00	2.47	3.25
Farmers 6-7-5 Trucker	6.00	5.76	5.00
Farmers Top Dresser.....	3.00	8.23	4.00
Nitrate of Soda.....	....	15.63	....
Kanona Tankage .....	....	9.04	....
Ground Fish .....	....	8.22	....
Muriate of Potash.....	....	....	50.00
Sulphate of Potash.....	....	....	50.00
Genuine German Kainit.....	....	....	12.00

Farmers Coöperative Fertilizer Co., Inc., Blackstone and Kenbridge, Va.—

F. C. F. Co.'s Raw Bone Meal.....Total	21.00	3.70	
Pure Animal Bone.....Total	21.00	2.47	....
F. C. F. Co.'s Acid Phosphate.....	16.00	....	....
F. C. F. Co.'s Acid Phosphate.....	14.00	....	....
Jericho Corn Grower.....	10.00	1.03	....
F. C. F. Co.'s Bone and Potash Compound....	10.00	....	4.00
F. C. F. Co.'s Bone and Potash Compound....	10.00	....	2.00
Walkover for Corn and Peanuts.....	9.00	1.03	1.00
Virginia Special for Tobacco.....	8.00	3.29	2.00
The Meherrin Special for Tobacco.....	8.00	2.47	3.00
Nottoway Special for Tobacco.....	8.00	2.47	2.00
Free State Official Tobacco Guano.....	8.00	2.05	3.00
Pope's Peerless Guano.....	8.00	1.64	3.00
Paul Jones for Tobacco.....	8.00	1.64	2.00
Farmers Common Sense Guano.....	8.00	1.27	3.00
Kainit .....	....	....	12.00

Foreign Products Company, Inc., Baltimore, Md.—

Ground Basic Slag.....Total	17.00	....	....
Acid Phosphate	16.00	....	....
Nitrate of Soda.....	....	15.00	....
Ground Blood .....	....	13.98	....
Ground Tankage .....	....	9.05	....
Ground Fish .....	....	8.22	....
Top Dressing "Star Brand".....	....	7.40	3.00
Muriate of Potash.....	....	....	50.00
Sulphate of Potash.....	....	....	48.60
Kainit .....	....	....	12.00
Prepared Lime .....	....	....	3.00

Farmville Oil and Fertilizer Co., Farmville, N. C.—

XX High Grade Acid Phosphate.....	16.00	....	....
High Grade Acid Phosphate.....	14.00	....	....
FFF Bone and Potash.....	12.00	....	4.00
Farmville High Grade (C. S. M.).....	10.00	2.47	4.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Davis's Corn Grower.....	10.00	.82	5.00
Pitt County Corn Grower.....	10.00	.82	4.00
Farmville's Favorite Fertilizer.....	9.00	2.90	5.00
Greene County Special (for tobacco).....	9.00	2.67	5.00
Scientific Cotton Grower.....	9.00	2.26	2.00
Specific Cotton Grower.....	9.00	2.26	2.00
East Carolina Cotton Grower.....	9.00	2.26	2.00
Davis's Special Guano.....	8.00	3.70	7.00
S-4-5 Tobacco Special	8.00	3.30	5.00
Carolina Chief	8.00	3.30	4.00
Lang's Favorite	8.00	3.30	4.00
Farmville Special	8.00	3.30	4.00
Turnage's Fish Scrap Mixture.....	8.00	3.30	4.00
Harris's Bright Leaf Tobacco Grower.....	8.00	3.30	4.00
Uncle Sam's Tobacco Grower.....	8.00	3.29	3.00
Big Leaf (Tobacco Grower).....	8.00	2.47	7.00
Lewis's S-3-7 Tobacco Special.....	8.00	2.47	7.00
Sterling for Tobacco.....	8.00	2.47	5.00
Pollard's Special Formula.....	8.00	2.47	5.00
Lewis's S-3-5 Tobacco Special.....	8.00	2.47	5.00
Obelisk	8.00	2.47	4.00
Pride of Pitt.....	8.00	2.47	4.00
Harriss's Special Tobacco Grower.....	8.00	2.47	3.00
Turnage's Fish Scrap Mixture.....	8.00	2.47	3.00
Congo	8.00	2.47	3.00
Davis's High Grade Tobacco Manure.....	8.00	2.47	3.00
Marlboro Tobacco Grower.....	8.00	2.47	3.00
Golden Crown	8.00	2.47	3.00
Marlboro Cotton Grower.....	8.00	2.47	3.00
Pitt County Cotton Grower.....	8.00	2.25	4.50
Chamblee & Sons' Special.....	8.00	2.25	2.00
Cotton King	8.00	2.05	4.00
Perfect Tobacco Guano.....	8.00	2.05	3.00
Davis's Cotton Grower.....	8.00	1.65	2.00
Carolina Standard	8.00	1.65	2.00
Farmville Standard (C. S. M.).....	8.00	1.65	2.00
Farmville's Bone Mixture.....	8.00	1.65	2.00
Lewis's Special for Cotton.....	7.00	2.67	4.50
Lang's High Grade Tobacco Manure.....	6.00	2.88	6.00
Evergreen Top Dresser.....	4.00	8.24	4.00
Second Application	4.00	4.10	6.00
Sulphate of Ammonia.....	....	20.50	....
Nitrate of Soda.....	....	15.00	....
Sulphate of Potash.....	....	....	50.00
Muriate of Potash.....	....	....	48.00
Hard Salts .....	....	....	16.00
Genuine German Kainit.....	....	....	12.00

Fremont Oil Mills, Fremont, N. C.—

16 Per Cent Acid Phosphate.....	16.00	....	....
Fremont High Grade Bone and Potash.....	10.00	....	4.00
Carolina C. S. M. Compound.....	9.00	2.26	2.00
Fremont High Grade Guano.....	8.00	3.29	4.00
F. O. M. Co. 9-3-7.....	9.00	2.47	7.00
Fremont Oil Mill Co.'s Special Tobacco.....	8.00	2.47	5.00
Nahunta Special	8.00	2.47	3.00
Square Deal	8.00	2.05	3.00
Up-to-date	8.00	1.65	2.00
F. O. M. Co.'s 6-5-7.....	6.00	4.10	7.00
F. O. M. Co. Top Dresser.....	3.00	7.40	5.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Nitrate of Soda		14.85	....
Muriate of Potash.....			48.00
Sulphate of Potash.....			48.00
Kainit			12.00

Farmers Cotton Oil Co., Wilson, N. C.—

16 Per Cent Acid Phosphate.....	16.00	....	....
Bonum Acid Phosphate.....	14.00	....	....
Contentnea Acid Phosphate.....	13.00	....	....
Washington's Corn Mixture Guano.....	10.00	.82	5.00
Xtra Good Bone and Potash.....	10.00	....	2.00
Whitley's Special Guano.....	9.00	3.30	4.00
Dean's Special Guano.....	8.00	3.70	7.00
Regal Tobacco Guano.....	8.00	2.88	5.00
Newsome's Tobacco Special.....	8.00	2.47	4.00
J. D. Farrier's Special Guano.....	8.00	2.47	3.00
Graves' Cotton Grower Guano.....	8.00	2.47	3.00
Golden Gem Guano.....	8.00	2.47	3.00
Wilson High Grade Guano.....	8.00	2.27	2.00
Planters' Friend Guano.....	8.00	2.06	3.00
Carolina Choice Tobacco Guano.....	8.00	2.06	3.00
Crop King Guano.....	8.00	1.65	2.00
Farmers' Special Guano.....	8.00	1.65	2.00
Rogers' Truck Grower.....	7.00	5.76	7.00
Wilson Top Dresser.....	2.00	9.05	4.00
Perfect Top Dresser.....	2.00	8.23	5.00
Sulphate of Ammonia.....	....	20.57	....
Nitrate of Soda.....	....	15.63	....
Sulphate of Potash.....	....	....	50.00
Muriate of Potash.....	....	....	50.00
German Kainit .....	....	....	12.00

*Franklin Cotton Oil and Fertilizer Co., Inc.,
Franklin, Va.—*

Pretlow & Co.'s H. G. Acid Phosphate.....	16.00	....	....
Pretlow & Co.'s H. G. Truck Fertilizer.....	8.00	4.12	5.00
Pretlow & Co.'s Cotton-seed Meal Mixture....	8.00	2.47	3.00
Pretlow & Co.'s Samson Guano.....	8.00	1.65	2.00
Pretlow & Co.'s Peanut Grower.....	8.00	1.00	4.00
Pretlow & Co.'s Genuine German Kainit.....	....	....	12.00

Georgia Chemical Works, Augusta, Ga.—

High Grade Dissolved Bone Phosphate.....	16.00	....	....
Extra Dissolved Bone Phosphate.....	14.00	....	....
Dissolved Bone Phosphate.....	13.00	....	....
12 Per Cent Dissolved Bone Phosphate.....	12.00	....	....
High Grade XX Acid Phosphate with Potash.	10.00	....	4.00
Bone and Potash.....	10.00	....	2.00
Mascot Blood and Bone Guano.....	9.00	2.47	3.00
Good as Gold Guano.....	9.00	1.65	3.00
Gem Crop Grower.....	9.00	1.65	2.00
Cardinal High Grade.....	8.00	3.29	4.00
Intensive Formula	8.00	2.47	3.00
Three Oaks High Grade Guano.....	8.00	2.47	2.00
Georgia Formula	8.00	1.65	2.00
XXX Meal Mixture.....	8.00	1.65	2.00
Acid Phosphate with 4 Per Cent Potash.....	8.00	....	4.00
Kainit .....	....	....	12.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
<i>German Kali Works, New York, N. Y.—</i>			
Muriate of Potash			48.00
Sulphate of Potash.....			47.00
Manure Salts			20.00
Kainit			12.00

Griffith & Boyd Co., Baltimore, Md.—

High Grade 16 Per Cent Acid Phosphate.....	16.00	....	....
Grower's Favorite	8.00	3.30	4.00
Farmer's Potato Manure	8.00	.82	9.00
Fish, Bone, and Potash.....	7.25	1.50	3.00
7 Per Cent Guano.....	5.00	5.75	5.00

Home Fertilizer and Chemical Co., Baltimore, Md.—

Eclipse Dissolved Phosphate	16.00	....	....
Home High Grade Acid Phosphate.....	14.00	....	....
Home Dissolved Animal Bone.....	12.00	1.65	....
Gilt Edge Crop Grower.....	10.00	1.65	4.00
Eclipse Blood, Beef and Bone.....	10.00	1.23	3.00
Home Bone and Potash.....	10.00	....	5.00
Home Alkaline Bone.....	10.00	....	2.00
Home Ammoniated Bone.....	9.00	1.65	3.00
Everybody's Fertilizer	9.00	.82	2.00
Home Standard Guano	8.00	3.30	4.00
Eclipse Dissolved Bone and Potash.....	8.00	2.48	4.00
Riosa Tobacco Compound.....	8.00	2.48	3.00
Special C. & C. Compound.....	8.00	2.48	3.00
Yancey's Formula for Yellow Leaf Tobacco...	8.00	2.48	2.00
Home Potato Special.....	8.00	1.65	10.00
Matchless Guano	8.00	1.65	4.00
Home Cereal Fertilizer.....	8.00	1.65	2.00
Ammoniated Bone Manure.....	7.00	1.65	5.00
Farmers' Choice	7.00	.82	4.00
Trucker's Special Compound.....	6.00	5.77	5.00
Home Vegetable Fertilizer.....	6.00	4.12	6.00
Eclipse Ammoniated Compound.....	6.00	3.30	10.00
Home Potato Grower.....	6.00	3.30	4.00
Sulphate of Ammonia.....	....	20.62	....
Nitrate of Soda .....	....	14.85	....
Cerealite Top Dresser.....	....	7.43	3.00
Home Fertilizer .....	....	5.77	7.00
Muriate of Potash.....	....	....	50.00
Sulphate of Potash.....	....	....	48.00
German Kainit .....	....	....	12.00

Hadley, Harris & Co., Wilson, N. C.—

Hadley's Special 8-4½-7.....	8.00	3.70	7.00
Hadley's 8-3-5 Mixture.....	8.00	2.47	5.00
Golden Weed Tobacco Grower.....	8.00	2.47	3.00
Hadley Boss	8.00	2.26	2.50
Daisy Fish Mixture	8.00	1.65	2.00
Top Dressing	2.00	8.23	5.00

Hampton Guano Co., Norfolk, Va.—

Pure Ground Bone.....Total	20.00	3.70	....
Supreme Acid Phosphate.....	16.00	....	....
Hampton Acid Phosphate.....	14.00	....	....
Hampton 12-5 Bone and Potash.....	12.00	....	5.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Hampton Bone and Potash Mixture.....	11.00	....	2.00
Hampton Crop Grower.....	10.00	....	4.00
Danutless Potash Mixture.....	10.00	....	2.00
Arlington Animal Bone Fertilizer.....	9.00	1.85	4.00
Alpha Crop Grower	8.50	2.06	2.50
Little's Favorite Crop Grower.....	8.00	3.29	4.00
Hampton Tobacco Guano	8.00	2.47	3.00
P. P. P. Princess Prolific Producer.....	8.00	2.47	3.00
Extra Tobacco Guano.....	8.00	1.65	2.00
Shirley Superphosphate	8.00	1.65	2.00
Hampton Special Grain and Peanut Fertilizer.	8.00	1.00	4.00
Excelsior Bone and Potash.....	8.00	....	4.00
Reliance Truck Guano.....	7.00	4.11	5.00
Virginia Truck Grower.....	6.00	5.76	5.00
Hampton 10 Per Cent Truck Grower.....	5.00	8.23	3.00
Hampton Top Dresser.....	4.00	8.23	2.00
Nitrate of Soda.....	....	15.00	....
Dry Ground Fish .....	....	8.23	....
Muriate of Potash.....	....	....	49.00
Sulphate of Potash .....	....	....	48.00
Genuine German Kainit.....	....	....	12.00

S. B. Harrell & Co., Inc., Norfolk, Va.—

Harrell's Acid Phosphate.....	14.00	....	....
Harrell's Eclipse	9.00	2.26	2.00
Harrell's Champion Cotton and Peanut Grower	8.00	1.65	2.00

The Hubbard Fertilizer Co., Baltimore, Md.—

Hubbard's 16 Per Cent Phosphate.....	16.00	....	....
Hubbard's 14 Per Cent Phosphate.....	14.00	....	....
Hubbard's Special Mixture 10 and 4.....	10.00	....	4.00
Hubbard's B. and P. 10 and 2.....	10.00	....	2.00
Hubbard's Noxall	8.00	3.28	4.00
Hubbard's Royal Ensign.....	8.00	2.46	4.00
Hubbard's Yellow Wrapper.....	8.00	2.46	3.00
Hubbard's Fish Compound.....	8.00	1.64	3.00
Hubbard's Exchange Guano.....	8.00	1.64	2.00
Hubbard's Southern Leader.....	7.00	3.28	5.00
Hubbard's 5 Per Cent Royal Seal.....	6.00	4.10	5.00
Hubbard's Heavy Long Leaf.....	4.00	3.28	6.00
Hubbard's New Process Top Dresser.....	....	7.51	3.50
Pure German Kainit.....	....	....	12.00

*Interstate Chemical Corporation, Charleston, S. C.,
and Charlotte, N. C.—*

Acid Phosphate	16.00	....	....
Acid Phosphate	14.00	....	....
Acid Phosphate	13.00	....	....
Acid Phosphate with Potash.....	10.00	....	4.00
Acid Phosphate with Potash.....	10.00	....	2.00
Special High Grade Guano.....	9.00	1.65	3.00
Favorite Crop Grower.....	9.00	1.65	2.00
High Grade Ammoniated Fertilizer.....	8.00	3.29	4.00
Planter's Preference	8.00	2.47	3.00
Special High Grade Truck Guano.....	8.00	3.29	6.00
Challenge Brand Guano.....	8.00	2.06	2.00
Complete Fertilizer	8.00	2.06	1.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Ammoniated Fertilizer	8.00	1.65	2.00
Grain and Hay Producer.....	8.00	.82	4.00
Acid Phosphate with Potash.....	8.00	....	4.00
Special High Grade Formula.....	7.00	2.47	7.00
High Grade Top Dresser.....	4.00	6.17	2.50
Nitrate of Soda.....	....	14.81	....
Muriate of Potash.....	....	....	48.00
Sulphate of Potash.....	....	....	48.00
Kainit .....	....	....	12.00

International Agricultural Corporation, Atlanta, Ga.—

Muriate of Potash.....			48.00
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The Imperial Co., Norfolk, Va.—

Imperial Pure Ground Bone.....Total	20.00	3.70	
Imperial High Grade Tennessee Acid Phos- phate	16.00		
Imperial High Grade Acid Phosphate.....	14.00	....	....
Imperial Catawba Wheat Grower.....	10.00	....	4.00
Imperial Carolina Wheat Mixture.....	10.00	....	3.00
Imperial Virginia Grain Mixture.....	10.00	....	2.00
Imperial Bone and Potash.....	10.00	....	2.00
Imperial Martin County Special Crop Grower.	9.00	2.26	2.00
Imperial Crop Grower.....	9.00	1.65	4.00
Imperial Snowflake Cotton Grower.....	8.00	3.29	4.00
Imperial Tobacco Grower.....	8.00	3.29	4.00
Imperial X. L. O. Cotton Guano.....	8.00	2.47	3.00
Imperial Tobacco Guano.....	8.00	2.47	3.00
Imperial Yellow Bark Sweet Potato Guano..	8.00	2.47	3.00
Imperial F. and B. Cotton Guano.....	8.00	2.06	3.00
Imperial Bright Tobacco Guano.....	8.00	2.06	3.00
Imperial Tennessee Tobacco Guano.....	8.00	1.65	8.00
Imperial Peanut Guano.....	8.00	1.65	4.00
Imperial Cotton Grower.....	8.00	1.65	2.00
Imperial Peanut and Corn Guano.....	8.00	1.65	2.00
Imperial Champion Guano.....	8.00	1.65	2.00
Imperial Cisco Soluble Guano.....	8.00	1.65	2.00
Imperial Standard Premium Guano.....	8.00	1.65	2.00
Imperial Ammoniated Guano.....	8.00	1.00	4.00
Imperial Fish and Bone Grain Grower.....	8.00	.82	4.00
Imperial Yadkin Wheat Grower.....	8.00	....	4.00
Imperial 7-7-7 Potato Guano.....	7.00	5.76	7.00
Imperial High Grade Irish Potato Guano.....	7.00	4.11	8.00
Imperial Dawson's Cotton Grower.....	7.00	2.67	2.75
Imperial Roanoke Crop Grower.....	7.00	2.47	2.00
Imperial Bryant's Special.....	6.50	2.47	10.00
Imperial Asparagus Mixture.....	6.00	4.94	7.00
Imperial 5-6-7 Potato Guano.....	6.00	4.11	7.00
Imperial Williams' Special Potato Guano....	6.00	4.11	5.00
Imperial Fish and Bone.....	6.00	3.29	4.60
Imperial Sweet Potato Guano.....	6.00	1.65	6.00
Imperial 10 Per Cent Guano.....	5.00	8.23	2.50
Imperial Ammoniated Top Dressing for Spinach	5.00	8.23	....
Imperial Special 7 Per Cent for Potatoes.....	5.00	5.76	5.00
Imperial Eastern Shore Sweet Potato Special.	5.00	3.29	9.00
Imperial Special Tobacco Guano.....	5.00	3.29	9.00
Imperial Top Dresser for Cotton.....	4.00	8.23	2.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Imperial Laughinghouse Special Tobacco			
Guano	4.00	3.29	6.00
Imperial Conetoe Cotton Grower.....	4.00	3.29	4.00
Imperial Cubanola Tobacco Guano.....	4.00	2.47	5.00
Imperial Nitrate of Soda.....	....	15.00	....
Imperial Dry Ground Fish Scrap.....	....	8.23	....
Imperial Animal Tankage.....	....	5.76	....
Imperial Muriate of Potash.....	....	....	49.00
Imperial Sulphate of Potash.....	....	....	48.00
Imperial Genuine German Kainit.....	....	....	12.00

Imperial Cotton Oil Co., Statesville, N. C.—

Imperial 16 Per Cent Acid Phosphate.....	16.00		
Imperial High Grade Acid Phosphate.....	14.00	....	....
10-4 Bone and Potash.....	10.00	....	4.00
Imperial Bone and Potash.....	10.00	....	2.00
King Cotton	8.00	2.47	3.00
Imperial Corn Grower.....	8.00	2.47	1.50
"Grasoil"	8.00	1.65	2.00
Imperial Cotton Grower.....	8.00	1.65	2.00

N. B. Josey Guano Co., Tarboro, N. C.—

Josey's 16 Per Cent Acid Phosphate.....	16.00	....	....
Josey's Bone and Potash.....	10.00	....	4.00
Josey's Prolific Cotton Grower.....	9.00	2.27	2.00
Josey's Truck Guano.....	8.00	4.10	5.00
Josey's 8-4-4 C. S. Meal and Fish Scrap Guano	8.00	3.30	4.00
Josey's Tip Top C. S. Meal and Fish Scrap			
Tobacco Guano	8.00	2.47	3.00
Josey's Home Builder C. S. M. and F. Guano.	8.00	2.47	3.00
Josey's Favorite C. S. Meal and Fish Scrap			
Guano	8.00	2.05	2.50
Josey's C. S. Meal Guano.....	8.00	1.65	2.00
Josey's Potato Guano.....	7.00	5.77	7.00
Josey's Peanut Guano.....	5.50	1.23	5.50
Josey's Elite Top Dresser.....	3.00	7.42	4.00
Nitrate of Soda.....	....	15.50	....
Josey's Top Dresser.....	....	7.42	4.00
Muriate of Potash.....	....	....	48.00
Manure Salts .....	....	....	20.00
Genuine German Kainit.....			12.00

J. T. John Co., John's, N. C.—

High Grade Acid Phosphate.....	16.00		
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A. S. Lee & Sons Co., Richmond, Va.—

Thomas Basic Slag	Total	17.00		
Lee's Corn Fertilizer.....		10.00		2.00
Lee's Wheat Fertilizer.....		10.00	....	2.00
Lee's Bone and Potash.....		9.00	....	4.00
Lee's 8-3-3 Fertilizer		8.00	2.46	3.00
Lee's Natural Tobacco Grower.....		8.00	1.64	2.00
Lee's 8-2-2 Fertilizer		8.00	1.64	2.00
Lee's Prepared Agricultural Lime.....		....	....	2.25

Lister's Agricultural Chemical Works, Newark, N. J.—

Lister's 4½-45 Bone Meal.....	Total	20.59	3.70	
Lister's High Grade Acid Phosphate.....		16.00	....	....
Lister's Phosphoric Acid and Potash.....		10.00	....	4.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Lister's Dissolved Phosphate and Potash.....	10.00	....	2.00
Lister's Carolina Bright for Tobacco.....	9.00	2.47	3.00
Lister's Standard Pure Bone Superphosphate of Lime	9.00	1.65	2.00
Lister's Complete Manure.....	8.00	2.47	3.00
Lister's Ammoniated Dissolved Bone Phos- phate	8.00	2.06	2.00
Lister's Success Fertilizer.....	8.00	1.65	2.00
Lister's 5-6-4 Fertilizer.....	6.00	4.11	4.00
Nitrate of Soda .....	....	15.00	....

John F. McNair, Laurinburg, N. C.—

Nitrate of Soda.....	....	14.81	....
Sulphate of Potash.....	....	....	50.00
Muriate of Potash.....	....	....	48.00
Genuine German Kainit.....	....	....	12.00

E. H. & J. A. Meadows Co., New Bern, N. C.—

Diamond Acid Phosphate.....	16.00	....	....
Diamond Acid Phosphate.....	14.00	....	....
Meadows' Dissolved Bone and Potash Com- pound	10.00	....	5.00
Meadows Dissolved Bone and Potash Com- pound	10.00	....	4.00
Meadows' Dissolved Bone and Potash Com- pound	10.00	....	2.00
Thompson's Fish Mixture.....	9.00	2.88	7.50
Meadows' Lobos Guano.....	8.00	4.11	5.00
Meadows' Ideal Tobacco Guano.....	8.00	3.29	4.00
Brooks' Special Tobacco Grower.....	8.00	2.47	5.00
Parker's Special Tobacco Guano.....	8.00	2.47	4.00
Dixon's High Grade Tobacco Guano.....	8.00	2.47	3.00
Meadows' Gold Leaf Tobacco Guano.....	8.00	2.47	3.00
Meadows' Roanoke Guano.....	8.00	2.05	3.00
Meadows' All Crop Guano.....	8.00	2.05	2.50
Meadows' Cotton Guano.....	8.00	1.65	2.00
Hokerton Cotton Guano.....	8.00	1.64	2.00
Meadows' Great Cabbage Guano.....	7.00	5.76	7.00
Meadows' Great Potato Guano.....	7.00	4.11	8.00
Meadows' 10 Per Cent Guano.....	6.00	8.23	2.50
Simmons' Special Guano.....	6.00	2.47	6.00
Nitrolite .....	....	7.43	3.00
Meadows' German Kainit.....	....	....	12.00

The Miller Fertilizer Co., Baltimore, Md.—

Miller's 16 Per Cent Acid Phosphate.....	16.00	....	....
Miller's 14 Per Cent Acid Phosphate.....	14.00	....	....
Corn and Peanut Grower.....	10.50	....	2.25
Corn and Wheat Grower.....	10.50	....	2.25
The Miller Fertilizer Co.'s 10 and 4 Per Cent. Clinch	10.00	....	4.00
Trucker	10.00	....	2.00
No. 1 Potato and Vegetable Grower.....	8.00	4.12	5.00
Miller's Irish Potato.....	8.00	3.71	7.00
4 Per Cent Tobacco.....	8.00	3.29	4.00
Standard Phosphate	8.00	3.29	4.00
Tobacco King	8.00	2.47	3.00
Miller's High Grade.....	8.00	2.47	3.00
	8.00	2.06	3.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Special Tobacco Grower.....	8.00	1.65	4.00
Potato and Vegetable Guano.....	8.00	1.65	4.00
Ammoniated Dissolved Bone.....	8.00	1.65	2.00
Farmers' Profit.....	8.00	1.65	2.00
High Grade Potato.....	6.00	4.12	7.00
Nitrate of Soda .....	....	15.05	....
Muriate of Potash.....	....	....	50.00
Sulphate of Potash.....	....	....	48.00
Kainit .....	....	....	12.00

The Mapes Formula and Peruvian Guano Co.,

Newark, N. J.—

Mapes' Complete Manure, "A" Brand.....	10.00	2.47	2.50
Mapes' Corn Manure.....	8.00	2.47	6.00
Mapes' Vegetable or Complete Manure for Light Soils	6.00	4.94	6.00
Mapes' Economical Potato Manure.....	4.00	3.29	8.00

T. W. Mewborn & Co., Kinston, N. C.—

H. G. Acid Phosphate.....	16.00	....	....
Genuine German Kainit.....	....	....	12.00

D. B. Martin Co., Richmond, Va.—

Martin's Pure Ground Bone.....Total	22.00	2.46	....
Martin's Raw Bone Meal.....Total	21.00	3.70	....
Martin's Acid Phosphate.....	16.00	....	....
Martin's Acid Phosphate.....	14.00	....	....
Martin's Pure Dissolved Animal Bone.....	12.00	1.65	....
Martin's Potash and Soluble Bone.....	12.00	....	5.00
Martin's Potash and Soluble Bone.....	12.00	....	3.00
Martin's Potash and Soluble Bone.....	10.00	....	6.00
Martin's Potash and Soluble Bone.....	10.00	....	5.00
Martin's Potash and Soluble Bone.....	10.00	....	4.00
Martin's Potash and Soluble Bone.....	10.00	....	3.00
Martin's Potash and Soluble Bone.....	10.00	....	2.00
Martin's Tobacco Special.....	9.00	2.46	3.00
Martin's Cotton Special.....	9.00	2.46	3.00
Martin's Tobacco Compound.....	9.00	2.26	2.00
Martin's Dissolved Organic Compound.....	9.00	1.00	3.00
Martin's Corn and Cereal Special.....	9.00	1.00	2.00
Martin's High Grade Guano.....	8.75	1.65	2.00
Martin's Blood, Bone and Potash.....	8.00	4.10	7.00
Martin's Red Star Brand Fertilizer.....	8.00	4.10	5.00
Special Fertilizer	8.00	3.28	6.00
Martin's Cotton and Tobacco Guano.....	8.00	3.28	6.00
Martin's Cotton Guano.....	8.00	3.28	4.00
Martin's Red Star Brand.....	8.00	3.28	4.00
Martin's Blue Ribbon Brand Fertilizer.....	8.00	3.28	2.00
Martin's Bull Head Fertilizer.....	8.00	2.46	8.00
Martin's Cotton and Tobacco Guano.....	8.00	2.46	5.00
Privott's Favorite	8.00	2.46	4.00
Martin's Bull Head	8.00	2.46	3.00
Martin's Tobacco Special.....	8.00	2.46	3.00
Martin's Special Fertilizer.....	8.00	2.05	3.00
Martin's Cotton Guano.....	8.00	2.05	1.00
Privott's Special for Potatoes and Peanuts...	8.00	1.65	6.00
Martin's Cotton and Tobacco Guano.....	8.00	1.65	5.00
Martin's Cotton and Tobacco Guano.....	8.00	1.65	3.00
Martin's Animal Organic Compound.....	8.00	1.65	3.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Martin's Slaughter House Special.....	8.00	1.65	2.00
Martin's Wheat Special	8.00	1.65	2.00
Martin's Carolina Special for Tobacco.....	8.00	1.65	2.00
Martin's Carolina Cotton.....	8.00	1.65	2.00
Martin's Corn and Cereal Special.....	8.00	1.65	2.00
Martin's Old Virginia Favorite.....	8.00	1.65	2.00
One Eight Four.....	8.00	1.03	4.00
Martin's Peanut Grower.....	8.00	1.03	4.00
Martin's Potash and Soluble Bone.....	8.00	....	4.00
Martin's Top Dresser.....	7.00	8.22	2.50
Martin's Red Star Brand Fertilizer.....	7.00	4.10	5.00
Glover's Special	7.00	3.28	8.00
Martin's Gilt Edge Potato Manure.....	7.00	2.46	10.00
Martin's 7 Per Cent Guano.....	6.00	5.74	5.00
Martin's Animal Bone Potato Fertilizer.....	6.00	4.10	7.00
Martin's Early Truck and Vegetable Grower.	6.00	3.28	8.00
Knowles' Special	6.00	3.28	6.00
Martin's Top Dresser.....	5.00	8.22	2.50
Nitrate of Soda.....	....	15.23	....
Muriate of Potash.....	....	....	50.00
Sulphate of Potash.....	....	....	48.00
Genuine German Kainit.....	....	....	12.00

Marietta Fertilizer Co., Atlanta, Ga.—

Bone Meal	Total	24.00	2.47	....
Raw Bone Meal.....	Total	22.00	3.70	....
Marietta Extra H. G. Acid.....		17.00	....	....
Marietta XXXX High Grade Acid Phosphate.		16.00	....	....
Marietta High Grade Acid Phosphate.....		14.00	....	....
Marietta 13-4		13.00	....	4.00
Marietta Potash Acid.....		12.00	....	6.00
Marietta Phosphate and Potash.....		12.00	....	4.00
Marietta Wheat and Clover Grower.....		12.00	....	2.00
Marietta Truck Guano.....		10.00	3.30	4.00
Marietta Ammoniated Bone		10.00	2.47	3.00
Langford's Special		10.00	1.65	4.00
Cooper's High Grade Guano.....		10.00	1.65	2.00
Fish Compound		10.00	1.65	2.00
Royal Seal Guano		10.00	1.65	2.00
Tonawando Guano		10.00	1.65	2.00
Marietta Special Guano		10.00	.82	3.00
Marietta Potash Mixture.....		10.00	....	5.00
Marietta Potash Special.....		10.00	....	4.00
Marietta Dissolved Bone Potash.....		10.00	....	2.00
Marietta Cotton Grower.....		9.00	2.47	3.00
Marietta Boll Producer.....		9.00	1.65	3.00
Marietta Beef, Blood and Bone.....		9.00	1.65	3.00
Marietta Fertilizer, No. 836.....		8.00	2.47	6.00
Marietta Tobacco Special.....		8.00	2.47	3.00
Marietta Fertilizer, No. 833.....		8.00	2.47	3.00
Pride of Piedmont.....		8.00	2.47	3.00
Farmers' Choice		8.00	2.06	3.00
Marietta Best for Tobacco.....		8.00	2.06	3.00
Marietta Sweet Potato Special.....		8.00	2.06	3.00
Marietta Special Potato		8.00	1.65	10.00
Marietta Fruit and Root Special.....		8.00	1.65	5.00
Marietta Fertilizer, No. 823.....		8.00	1.65	3.00
Marietta Guano		8.00	1.65	2.00
Marietta Solid South		8.00	1.65	2.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Marietta Golden Grain Grower.....	8.00	....	4.00
Marietta Manure Substitute.....	6.00	3.30	4.00
McLean's Magic Mover.....	3.00	8.23	2.00
Tankage	2.00	8.24	....
Sulphate of Ammonia.....	....	20.00	....
Nitrate of Soda.....	....	14.81	....
Muriate of Potash.....	....	....	50.00
Sulphate of Potash.....	....	....	50.00
German Kainit .....	....	....	12.00

The MacMurphy Co., Charleston, S. C.—

High Grade Acid Phosphate, 14 Per Cent....	14.00	....	....
Acid Phosphate	13.00	....	....
Acid Phosphate and Potash.....	12.00	....	1.00
Acid Phosphate and Potash.....	11.00	....	1.00
Acid Phosphate and Potash.....	10.00	....	5.00
Acid Phosphate and Potash.....	10.00	....	4.00
Acid Phosphate and Potash.....	10.00	....	2.00
Wilcox & Gibbs Co.'s Manipulated Guano....	9.00	2.26	2.00
Special Cotton and Corn 9-2-2.....	9.00	1.65	2.00
Special 8-4-6 Guano	8.00	3.29	6.00
Special 8-4-4 Cotton Guano.....	8.00	3.29	4.00
Special 8-4-4 Tobacco Guano.....	8.00	3.29	4.00
Special 8-3-3 Cotton and Corn.....	8.00	2.47	3.00
Special 8-3-3 Tobacco Guano.....	8.00	2.47	3.00
Standard 8-2½-1 Guano	8.00	2.06	1.00
Special 8-2-2 Guano	8.00	1.65	2.00
Nitrate of Soda.....	....	14.81	....
Muriate of Potash.....	....	....	48.00
Sulphate of Potash.....	....	....	48.00

Marlboro Fertilizer Co., Bennettsville, S. C.—

Marlboro Perfection Acid Phosphate.....	16.00	....	....
Nitrate of Soda.....	14.80	....	....
Marlboro High Grade Acid Phosphate.....	14.00	....	....
Marlboro Standard Acid Phosphate.....	13.00	....	....
Marlboro Perfection	8.00	3.29	4.00
Marlboro Special	8.00	3.29	4.00
Farmers Mixture	8.00	3.29	4.00
Marlboro High Grade	8.00	2.47	3.00
Marlboro Excelsior	8.00	2.47	3.00
Marlboro Complete Fertilizer.....	7.00	2.47	12.00
Farmers Special Mixture.....	6.00	2.47	2.50
Marlboro Top Dresser.....	4.00	8.25	3.00
Muriate of Potash.....	....	....	48.00
Marlboro German Kainit.....	....	....	12.00

North Carolina Cotton Oil Co., Wilmington, N. C.—

High Grade Acid Phosphate.....	16.00	....	....
Wilmington Bone and Potash.....	10.00	....	4.00
Pate's High Grade.....	9.00	2.47	3.00
Cockrell & Williams' Cotton Grower.....	9.00	2.27	2.00
Wilmington Mortgage Lifter.....	9.00	2.27	2.00
Wilmington's Pride	8.00	4.12	7.00
Wilmington's Truck Grower.....	8.00	3.30	4.00
Bullock's High Grade.....	8.00	3.30	4.00
Wilmington's Full Value.....	8.00	3.30	4.00
Wilmington Fruit Grower	8.00	2.47	10.00
Best Tobacco Grower.....	8.00	2.47	7.50

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
John's Special	8.00	2.47	4.00
Bullock's Cotton Grower.....	8.00	2.47	4.00
Wilmington Farmer Boy.....	8.00	2.47	4.00
Cooper's Special	8.00	2.47	3.00
The Stone Company Special.....	8.00	2.47	3.00
Clute's Cotton Grower.....	8.00	2.47	3.00
Wilmington Leader	8.00	2.47	3.00
Wilmington High Grade.....	8.00	2.47	3.00
L. P. B. Special.....	8.00	2.47	3.00
Lewis' Special	8.00	2.47	3.00
Carter's Lifter	8.00	2.47	3.00
Wilmington Standard	8.00	2.47	2.50
Pate's Special	8.00	2.47	2.00
Currie's Crop Grower	8.00	2.06	4.00
Wilmington Tobacco Grower.....	8.00	2.06	3.00
Wilmington Banner	8.00	1.65	3.00
Clark's Special	8.00	1.65	3.00
Maulsby's Cotton Grower.....	8.00	1.65	3.00
Wilmington Cotton Grower.....	8.00	1.65	2.00
Wilmington Special	8.00	1.65	2.00
Wilmington Headlight	6.00	3.30	8.00
Wilmington High Grade Top Dresser.....	4.50	7.40	3.00
Dried Blood .....	....	16.00	....
Nitrate of Soda.....	....	14.80	....
Wilmington Special Top Dresser.....	....	7.40	3.00
H. G. Ground Tankage.....	....	7.00	....
Muriate of Potash.....	....	....	50.00
Sulphate of Potash.....	....	....	48.00
Kainit .....	....	....	12.00
<i>North Carolina Cotton Oil Co., Raleigh, N. C.—</i>			
Raleigh Standard Guano.....	8.00	2.26	2.00
<i>North Carolina Cotton Oil Co., Charlotte, N. C.—</i>			
Dixie Standard	8.00	2.48	3.00
Majestic	8.00	1.65	2.00
<i>North Carolina Cotton Oil Co., Henderson, N. C.—</i>			
Pride of Vance Tobacco Fertilizer.....	9.00	2.47	3.00
Unedit Tobacco Fertilizer.....	9.00	2.47	3.00
Henderson Tobacco Fertilizer.....	9.00	2.47	3.00
Franklin Tobacco Fertilizer.....	9.00	2.47	3.00
Two in One.....	8.00	3.29	4.00
Henderson High Grade.....	8.00	2.47	3.00
McKinne Mixture	8.00	2.26	3.25
Brewer's Special	8.00	2.26	2.00
American Pet	8.00	2.26	2.00
Henderson Cotton Grower	8.00	1.65	2.00
Franklin Cotton Grower	8.00	1.65	2.00
Unedit Cotton Grower	8.00	1.65	2.00
Vance Cotton Grower	8.00	1.65	2.00
<i>Nitrate Agencies Co., New York, Baltimore, Savannah, Charleston and Norfolk—</i>			
Basic Slag	Total	17.00	....
Acid Phosphate .....	....	16.00	....
Acid Phosphate .....	....	14.00	....
Nitrate of Soda.....	....	15.00	....

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Muriate of Potash.....			50.00
Sulphate of Potash.....			48.00
Kainit			12.00

New Bern Cotton Oil and Fertilizer Mills, New Bern, N. C.—

Thomas Phosphate	Total	18.00	....	....
Bone Meal	Total	16.00	2.47	....
16 Per Cent Acid Phosphate.....		16.00	....	....
14 Per Cent Acid Phosphate.....		14.00	....	....
Special Corn and Peanut Grower.....		11.00	....	2.00
High Grade Bone and Potash.....		10.00	....	4.00
Carteret Bone and Potash.....		10.00	....	2.00
Greene County Tobacco Fertilizer.....		9.00	2.47	5.00
Oriole Tobacco Grower.....		8.00	3.30	4.00
Harvey's Special Meal and Fish Guano.....		8.00	2.47	3.00
Special C. S. M. Mixture.....		8.00	2.47	3.00
Foy's High Grade Fertilizer.....		8.00	2.47	3.00
Lenoir Bright Leaf Tobacco Grower.....		8.00	2.47	3.00
Pitt's Prolific Golden Tobacco Guano.....		8.00	2.27	2.00
Favorite Cotton Grower.....		8.00	2.06	3.00
Onslow's Farmers' Reliance Guano.....		8.00	2.06	3.00
Jones County Premium Crop Grower.....		8.00	1.65	2.00
Craven Cotton Guano.....		8.00	1.65	2.00
Greene County Standard Fertilizer.....		7.00	5.77	7.00
Dunn's Standard Truck Grower.....		7.00	4.12	7.00
Ives' Irish Potato Guano.....		6.00	3.30	7.00
Eureka Tobacco Fertilizer.....		5.00	8.25	2.50
Pamlico Electric Top Dresser.....		4.00	3.30	6.00
Wooten's Special Tobacco Guano.....		....	20.62	....
Sulphate of Ammonia.....		....	15.67	....
Nitrate of Soda.....		....	13.20	....
Ground Blood .....		....	9.90	....
Ground Tankage .....		....	8.25	3.00
Eureka Top Dresser.....		....	8.25	....
High Grade Fish Scrap.....		....	....	50.00
Sulphate of Potash.....		....	....	48.00
Muriate of Potash.....		....	....	12.00
Genuine German Kainit.....		....	....	....

Norfolk Fertilizer Co., Norfolk, Va.—

Pure Ground Bone.....	Total	20.00	3.70	....
Oriana 16 Per Cent Acid Phosphate.....		16.00	....	....
Whitney H. G. Acid Phosphate.....		16.00	....	....
Oriana 14 Per Cent Acid Phosphate.....		14.00	....	....
Oriana Wheat Grower.....		10.00	....	4.00
Shenandoah Wheat Mixture.....		10.00	....	3.00
Young's Grain Grower.....		10.00	....	2.00
Oriana Bone and Potash.....		10.00	....	2.00
Oriana C. S. M. Special.....		9.00	2.26	2.00
Oriana Complete Fertilizer.....		8.00	3.29	4.00
Oriana First Step Tobacco Guano.....		8.00	3.29	4.00
Oriana Tobacco Guano.....		8.00	2.47	3.00
Oriana for Cotton.....		8.00	2.47	3.00
Oriana Bright Leaf Guano.....		8.00	2.06	3.00
Oriana Cotton Guano.....		8.00	1.65	2.00
Oriana Crop Grower.....		8.00	1.65	2.00
Mayodan Valley Wheat Grower.....		8.00	....	4.00
Oriana Special Mixture.....		6.00	4.11	5.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Oriana Truck Guano.....	5.00	5.76	5.00
Pine Top Special Crop Grower.....	5.00	1.65	6.00
Nitrate of Soda Mixture for Top Dressing			
Cotton	4.00	8.23	2.00
Oriana High Grade Tobacco Guano.....	4.00	3.29	6.00
Nitrate of Soda.....	....	15.00	....
Dry Ground Fish .....	....	8.23	....
Animal Tankage .....	....	5.76	....
Muriate of Potash.....	....	....	49.00
Sulphate of Potash.....	....	....	48.00
Genuine German Kainit.....	....	....	12.00

Navassa Guano Co., Wilmington, N. C.—

Pure Raw Bone.....Total	22.50	3.71	....
Thomas Phosphate	17.00	....	....
Navassa 17 Per Cent Acid Phosphate.....	17.00	....	....
Navassa 16 Per Cent Acid Phosphate.....	16.00	....	....
Navassa Acid Phosphate.....	14.00	....	....
Navassa Dissolved Bone.....	13.00	....	....
Navassa Wheat Belt Special.....	12.00	....	6.00
Navassa Special Grain Mixture.....	12.00	....	5.00
Navassa Special Wheat Mixture.....	12.00	....	4.00
Navassa Gray Land Mixture.....	12.00	....	4.00
Navassa Acid Phosphate.....	12.00	....	....
Maxim Guano	10.00	2.47	2.00
Corona Guano	10.00	1.65	2.00
Johnston County Bone and Potash.....	10.00	....	5.00
Navassa Wheat and Grass Grower.....	10.00	....	4.00
Navassa Wheat Mixture.....	10.00	....	2.25
Navassa Dissolved Bone with Potash.....	10.00	....	2.00
Navassa Fish Guano.....	9.00	2.47	3.00
Robeson County Special	9.00	2.47	3.00
Navassa Big Boll Special.....	9.00	2.26	2.00
Navassa Manipulated Guano.....	9.00	2.26	2.00
Oscola Guano	9.00	1.65	3.00
Harvest Queen Fertilizer.....	9.00	1.65	2.00
Navassa Complete Fertilizer.....	9.00	1.65	1.00
Long's Wheat and Grain Guano.....	9.00	.82	3.00
Farmers Mixture	8.75	1.85	4.00
Navassa Universal Fertilizer.....	8.50	2.06	1.00
Enterprise Strawberry Grower.....	8.00	3.29	11.00
Navassa Special Meal Fertilizer.....	8.00	3.29	4.00
Coree Tobacco Guano.....	8.00	3.29	4.00
Navassa High Grade Fertilizer.....	8.00	3.29	4.00
Navassa Special Truck Guano.....	8.00	3.29	4.00
Navassa Carib Guano.....	8.00	2.47	10.00
Navassa Blood and Meal Mixture.....	8.00	2.47	5.00
Navassa Big Cotton Grower.....	8.00	2.47	4.00
Orton Guano	8.00	2.47	4.00
Navassa High Grade Guano.....	8.00	2.47	3.00
Clarendon Tobacco Guano.....	8.00	2.47	3.00
Navassa Standard Meal Guano.....	8.00	2.47	3.00
Navassa Cotton-seed Meal Special 3 Per Cent Guano	8.00	2.47	2.00
Navassa Strawberry Top Dressing.....	8.00	2.06	4.00
Sullivan Tobacco Special.....	8.00	2.06	3.00
Mogul Guano	8.00	2.06	3.00
Maultsby's Meal Mixture	8.00	2.06	3.00
Navassa Guano for Tobacco.....	8.00	2.06	2.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Ammoniated Soluble Navassa Guano.....	8.00	2.06	2.00
Brooks' Ammoniated Guano.....	8.00	2.06	1.50
Navassa Fruit Grower Fertilizer.....	8.00	1.65	6.00
Harvest King Guano.....	8.00	1.65	3.00
Clark's Special Cotton-seed Meal Guano.....	8.00	1.65	3.00
Navassa Grain Fertilizer.....	8.00	1.65	2.00
Navassa Cotton-seed Meal Guano.....	8.00	1.65	2.00
Navassa Cotton Fertilizer.....	8.00	1.65	2.00
Occoneechee Tobacco Guano.....	8.00	1.65	2.00
Navassa Dissolved Bone with Potash.....	8.00	....	4.00
Navassa Lettuce Grower Fertilizer.....	7.00	5.76	7.00
Navassa Root Crop Fertilizer.....	7.00	4.12	7.00
Navassa Creole Guano.....	6.00	4.12	7.00
Navassa H. G. Top Dresser.....	4.00	7.82	4.00
Navassa Top Dresser.....	4.00	6.17	2.50
Navassa Quick Results Top Dresser.....	4.00	4.94	2.50
Navassa Special Top Dresser.....	2.00	5.76	2.50
Sulphate of Ammonia.....	....	20.59	....
Nitrate of Soda.....	....	14.82	....
Blood .....	....	13.15	....
High Grade Tankage.....	....	8.25	....
Fish Scrap .....	....	8.24	....
Navassa Big Lick Top Dresser.....	....	7.41	3.00
Muriate of Potash.....	....	....	48.00
Sulphate of Potash.....	....	....	48.00
Genuine German Kainit.....	....	....	12.00

G. Ober & Sons Co., Baltimore, Md.—

Pure Raw Bone Meal.....Total	21.00	3.71	....
Ober's High Grade Acid Phosphate.....	16.00	....	....
Ober's Dissolved Bone Phosphate.....	14.00	....	....
Ober's Standard Potash Compound.....	12.00	....	5.00
Ober's Dissolved Animal Bone.....	10.00	2.47	....
Ober's Acid Phosphate with Potash.....	10.00	....	4.00
Ober's Dissolved Bone, Phosphate and Potash.	10.00	....	2.00
Ober's Special High Grade Fertilizer.....	9.00	2.47	3.00
Ober's Special Ammoniated Dissolved Bone..	9.00	1.65	2.00
Ober's Farmers' Mixture.....	9.00	.82	2.00
Ober's H. G. Fertilizer.....	8.00	3.30	4.00
Ober's Special Compound for Tobacco.....	8.00	2.47	3.00
Ober's Special Compound for All Crops.....	8.00	2.47	3.00
Cooper's Pungo Guano	8.00	2.06	2.00
Ober's Standard Tobacco Fertilizer.....	8.00	1.65	2.00
Ober's Special Cotton Compound.....	8.00	1.65	2.00
Ober's Soluble Ammoniated Superphosphate of Lime	8.00	1.65	2.00
Ober's Stag Guano.....	8.00	.82	4.00
Ober's Acid Phosphate with Potash.....	8.00	....	4.00
Ground Fish	7.30	9.00	....
Red Seal Special Tobacco Guano.....	6.00	2.47	7.00
Ober's Complete Fertilizer.....	6.00	4.12	6.00
Ober's Special Tobacco Bed Fertilizer, 10 Per Cent	4.00	8.25	3.00
Nitrate of Soda.....	....	15.50	....
Ground Blood .....	....	13.00	....
Sulphate of Potash.....	....	....	48.00
Muriate of Potash .....	....	....	48.00
Kainit .....	....	....	12.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
<i>Ocean Fisheries Co., Wilmington, N. C.—</i>			
Machine Dried Fish Scrap.....	6.00	8.00	....
Acidulated Fish Scrap.....	3.00	5.00	....
<i>The Pocomoke Guano Co., Norfolk, Va.—</i>			
Pure Ground Bone.....Total	20.00	3.70	....
Superb Acid Phosphate.....	16.00	....	....
Peerless Acid Phosphate.....	14.00	....	....
Pocomoke 12-5 Bone and Potash.....	12.00	....	5.00
Alkali Bone	11.00	....	2.00
Pocomoke Bone and Potash Mixture.....	10.00	....	4.00
10-2 Potash Mixture.....	10.00	....	2.00
Monticello Animal Bone Fertilizer.....	9.00	1.85	4.00
Cinco Tobacco Guano.....	8.50	2.06	2.50
Pocomoke Superphosphate	8.50	1.65	2.00
Electric Crop Grower.....	8.50	1.65	2.00
Garrett's Grape Grower.....	8.00	3.29	10.00
Faultless Ammoniated Superphosphate.....	8.00	3.29	4.00
Monarch Tobacco Grower.....	8.00	2.47	3.00
Harvey's High Grade Monarch.....	8.00	2.47	3.00
Pocomoke Sweet Potato Grower.....	8.00	2.47	3.00
CCC Crescent Complete Compound.....	8.00	1.65	3.00
Pamlico Superphosphate	8.00	1.65	2.00
Pocomoke Wheat, Corn and Peanut Manure..	8.00	1.00	4.00
Pocomoke Defiance Bone and Potash.....	8.00	....	4.00
Pocomoke Truck Grower 5 Per Cent.....	7.00	4.11	5.00
Standard Truck Guano	7.00	4.11	5.00
Seaboard Popular Trucker.....	6.00	5.76	5.00
Freeman's 7 Per Cent Irish Potato Grower...	6.00	5.76	5.00
Coast Line Truck Guano.....	5.00	8.23	3.00
Pocomoke Top Dresser.....	4.00	8.23	2.00
Smith's Special Formula	4.00	3.29	6.00
Nitrate of Soda.....	....	15.00	....
Dry Ground Fish .....	....	8.23	....
Muriate of Potash.....	....	....	49.00
Sulphate of Potash.....	....	....	48.00
Genuine German Kainit.....	....	....	12.00
<i>Peruvian Guano Corporation, Charleston, S. C.—</i>			
Genuine Peruvian Guano Pleione No. 1.....	20.00	3.08	3.25
Thomas Phosphate (Basic Slag).....Total	18.00	....	....
Peruvian H. G. Acid Phosphate.....	16.00	....	....
Genuine Peruvian Guano Simetra No. 1.....	14.00	3.29	2.00
H. G. Genuine Peruvian Guano Ex. S. S. Chipana	14.00	3.21	2.00
H. G. Genuine Peruvian Guano Ex. S. S. dor	14.00	2.46	2.00
Genuine Peruvian Guano Simetra No. 2.....	14.00	2.46	2.00
Genuine Peruvian Guano Pleione No. 2.....	14.00	2.30	2.50
Peruvian Acid Phosphate.....	14.00	....	....
Peruvian Acid Phosphate.....	14.00	....	....
Peruvian Acid Phosphate.....	13.00	....	....
Genuine Peruvian Guano Madura No. 2.....	13.00	4.93	2.00
H. G. Genuine Peruvian Guano Ex. S. S. Capac	13.00	4.93	2.00
Genuine Peruvian Guano Madura No. 1.....	12.00	9.45	3.00
Genuine Peruvian Guano Ex. S. S. Marie Teresa	12.00	2.75	1.80
"Chincha Island" High Grade Peruvian Mix- ture	10.00	3.29	4.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
"Penguin" Peruvian Compound.....	10.00	2.46	3.00
Petrel Peruvian Mixture	10.00	2.00	4.00
"Albatross" Peruvian Formula.....	10.00	1.64	4.00
H. G. Peruvian Mixture.....	10.00	1.64	2.00
Special Peruvian Wheat Mixture.....	10.00	1.64	2.00
Peruvian Potash Special.....	10.00	....	4.00
Sea Island Peruvian Mixture.....	9.00	2.46	3.00
Cuzco Peruvian Mixture.....	9.00	1.64	6.00
Laranago Peruvian Formula.....	9.00	1.64	2.00
Peruvian Top Dresser Total	8.00	6.99	3.50
Bellestas H. G. Peruvian Mixture.....	8.00	3.29	4.00
Cormorant H. G. Peruvian Mixture.....	8.00	2.46	4.00
Lobos Peruvian Mixture.....	8.00	2.46	3.00
Pignero Peruvian Compound	8.00	2.46	2.00
Alcatroz Peruvian Corn Grower.....	8.00	1.64	3.00
Standard Peruvian Mixture.....	8.00	1.64	2.00
Excelsior Peruvian Formula.....	8.00	.83	3.00
Peruvian Acid Potash Mixture.....	8.00	....	4.00
Nitrate of Soda.....	....	14.80	....
Dried Blood .....	....	13.10	....
Fish Scrap .....	....	8.20	....
Muriate of Potash.....	....	....	49.00
Sulphate of Potash.....	....	....	48.00
Genuine German Kainit.....	....	....	12.00

Z. V. Pate, Laurel Hill, N. C.—

Cotton Fertilizer	9.00	2.47	3.00
Tuxedo Fertilizer	8.00	2.47	3.00
High Grade Fertilizer.....	7.00	3.29	5.00
Cotton-seed Meal Fertilizer	6.50	2.47	2.50

Pan-American Fertilizer Co., Norfolk, Va.—

Pan-American 16 Per Cent Acid Phosphate...	16.00		
Pan-American Harvest Winner.....	11.00	....	5.00
Pan-American Ideal Mixture.....	10.00	....	4.00
Pan-American 10 and 2	10.00	....	2.00
Pan-American Favorite Compound.....	8.00	3.29	4.00
Pan-American Special Cotton Grower.....	8.00	2.47	3.00
Pan-American Universal Phosphate.....	8.00	1.65	2.00
Pan-American Peanut and Grain Special....	8.00	1.03	4.00
Pan-American Special	7.00	5.76	5.00
Pan-American 6 Per Cent Trucker.....	7.00	4.94	5.00
Pan-American Potato, Tobacco and Truck....	7.00	4.11	5.00
Pan-American Tip Top Dresser.....	5.00	8.23	2.00
Pan-American Potato and Truck Special....	5.00	5.76	5.00
Pan-American Truckers' Ideal Guano.....	5.00	4.94	5.00
Pan-American Universal Top Dresser.....	3.00	8.23	4.00

Pamlico Chemical Co., Washington, N. C.—

Pamlico 16 Per Cent Acid Phosphate.....	16.00	....	....
Pamlico Bone Phosphate.....	14.00	....	....
Martin County Peanut Guano.....	10.00	1.23	4.00
Pamlico Peanut Guano.....	10.00	....	4.00
Dissolved Bone and Potash.....	10.00	....	2.00
Pitt County High Grade Tobacco Guano....	9.00	2.88	10.00
Blount's Special Cotton Grower.....	9.00	2.27	2.00
Prosperity Cotton Grower.....	9.00	2.26	2.00
United States High Grade Tobacco Guano...	8.00	4.12	10.00
Pamlico 8-5-10 Guano.....	8.00	4.12	10.00
Cowell's Great Potato Grower.....	8.00	4.12	7.00
Pamlico 8-4-4 Guano.....	8.00	3.30	4.00

Name and Address of Manufacturer and Name of Brand.	Avall. Phos. Acid.	Nitrogen.	Potash.
Bull's Eye Tobacco Grower.....	8.00	3.30	4.00
Early Sweet Potato.....	8.00	2.47	10.00
Pamlico High Grade Tobacco Grower.....	8.00	2.47	5.00
Success Guano Total	8.00	2.47	3.00
Tobacco Growers' Friend.....	8.00	2.47	3.00
Farmers' Best Guano.....	8.00	2.06	3.00
Quick Grower	8.00	2.06	3.00
Rust Proof Cotton Guano.....	8.00	1.65	3.00
Crop Guano	8.00	1.65	2.00
Pamlico Bone and Fish.....	8.00	1.65	2.00
Pamlico Cotton Guano.....	8.00	1.65	2.00
Pamlico 7-7-7	7.00	5.77	7.00
Pamlico 7-5-8 Guano.....	7.00	4.12	8.00
Pamlico Special Irish Potato Guano.....	7.00	4.12	7.00
Pamlico Special Sweet Potato Guano.....	7.00	4.12	5.00
Pamlico Favorite Potato Guano.....	7.00	4.12	5.00
H. G. Truck Guano.....	7.00	4.12	5.00
Potato Favorite Guano.....	7.00	3.30	7.00
Faulkland H. G. Tobacco Guano.....	6.00	2.47	6.00
Cowell's Great Cabbage Grower.....	5.00	8.25	2.50
4-3-5 Guano	4.00	2.47	5.00
Cereal Top Dresser.....	3.00	7.42	3.00
Sulphate of Ammonia.....	....	20.62	....
Nitrate of Soda.....	....	14.85	....
Quickstep Top Dresser.....	....	8.25	4.00
Pamlico Ground Fish.....	....	8.25	....
Sulphate of Potash.....	....	....	55.00
Muriate of Potash.....	....	....	48.00
German Kainit .....	....	....	12.00

*Planters Fertilizer and Phosphate Co., Charleston,
S. C.—*

16 Per Cent Acid Phosphate.....	16.00	....	....
Planters' High Grade Acid Phosphate.....	14.00	....	....
Excelsior H. G. Acid Phosphate.....	14.00	....	....
Planters' Soluble Bone.....	13.00	....	....
Planters' Bone and Potash.....	12.00	....	1.00
Planters' Special Meal.....	10.00	1.65	2.00
Planters' Grain Grower.....	10.00	.82	3.00
Special Mixture	10.00	....	5.00
Planters' Acid and Potash.....	10.00	....	4.00
Planters' Bone and Potash.....	10.00	....	2.00
Planters' Blood and Fish Guano.....	9.00	1.65	3.00
Planters' Special Mixture.....	9.00	.82	3.00
Planters' Special Mixture.....	8.00	4.12	5.00
Planters' Special Cotton Fertilizer.....	8.00	3.29	4.00
Planters' Bright Tobacco Fertilizer.....	8.00	3.29	4.00
Planters' Cotton and Corn Fertilizer.....	8.00	2.47	4.00
Planters' H. G. Tobacco Fertilizer.....	8.00	2.47	3.00
Planters' Soluble Guano.....	8.00	2.47	3.00
Planters' Fertilizer	8.00	2.06	2.00
Planters' Standard Fertilizer.....	8.00	1.65	2.00
Planters' Bone and Potash.....	8.00	....	4.00
Special Mixture	7.00	5.76	7.00
Special Mixture	7.00	4.11	7.00
Special Mixture	7.00	4.11	5.00
Planters' H. G. Top Dresser.....	4.00	6.18	2.50
Nitrate of Soda.....	....	14.83	....
Planters' Muriate of Potash.....	....	....	48.00
Sulphate of Potash.....	....	....	48.00
Planters' German Kainit.....	....	....	12.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
<i>Pearsall & Co., Wilmington, N. C.—</i>			
Pearsall's H. G. Acid Phosphate.....	16.00	....	....
Pearsall's H. G. Acid Phosphate.....	14.00	....	....
Pearsall's Bone and Potash.....	10.00	....	4.00
Hall's Special	8.00	3.30	5.00
Davis's Special	8.00	3.30	4.00
Pearsall's Bone Meal and Fish.....Total	8.00	3.30	4.00
Pearsall's Fish and Potash Compound.....	8.00	3.30	4.00
Pearsall's Berry Guano.....	8.00	2.47	10.00
Pearsall's Fernside Tobacco Guano.....	8.00	2.47	7.00
Pearsall's Useme Guano.....	8.00	2.47	3.00
Pearsall's High Grade Tobacco.....	8.00	2.47	3.00
Pearsall's F. F. F. G.	8.00	2.47	3.00
Oliver's Cotton and Corn.....	8.00	2.07	4.00
Currie's Cotton and Corn Guano.....	8.00	1.65	3.00
Pearsall's Corn Guano.....	8.00	1.65	3.00
Pearsall's Two Step Guano.....	8.00	1.65	2.00
Pearsall's Potato and Truck Guano.....	6.00	4.12	7.00
Pearsall's Complete Top Dresser.....	3.00	7.43	3.00
Nitrate of Soda .....	....	14.85	....
Pearsall's Ground Fish.....	....	8.47	....
Pearsall's Top Dresser.....	....	7.42	3.00
Bone Meal .....	....	3.30	....
Muriate of Potash.....	....	....	48.00
Sulphate of Potash.....	....	....	48.00
Pearsall's German Kainit.....	....	....	12.00

Pacific Guano Co., Charleston, S. C.—

Standard Pacific Acid Phosphate.....	12.00	....	....
Standard Soluble Pacific Guano.....	8.50	1.65	2.00
High Grade Pacific Fertilizer.....	8.00	2.46	3.00

Powhatan Chemical Co., Richmond, Va.—

Pure Animal Bone.....Total	25.00	2.47	....
Pure Raw Bone Meal.....Total	22.50	3.50	....
Magic Dissolved Bone Phosphate.....	16.00	....	....
High Grade Acid Phosphate.....	14.00	....	....
Powhatan Acid Phosphate.....	13.00	....	....
Magic Corn Special.....	12.00	1.00	2.00
Magic Wheat Special.....	12.00	1.00	2.00
High Grade Bone and Potash Mixture.....	12.00	....	5.00
Virginia Dissolved Bone.....	12.00	....	....
Magic Corn Grower.....	10.00	.82	1.00
Magic Crop Grower.....	10.00	.82	1.00
Magic Bone and Potash Mixture.....	10.00	....	4.00
Bone and Potash Mixture.....	10.00	....	2.00
Guilford Special Tobacco Fertilizer.....	9.00	2.47	6.00
Ralling's Special Fertilizer.....	9.00	2.47	2.00
Economic Cotton Grower.....	9.00	2.26	2.00
Johnson's Best Fertilizer.....	9.00	2.06	5.00
Holt's Magic Fertilizer.....	9.00	2.06	5.00
Johnson's Best Fertilizer.....	9.00	2.00	5.00
Union Magic Fertilizer.....	9.00	1.85	4.00
North Carolina Favorite.....	9.00	1.65	3.00
Powhatan Special Fertilizer.....	9.00	1.65	2.00
Magic Mixture	9.00	1.65	1.00
Magic Wheat Grower.....	9.00	.82	2.00
King Trucker	8.00	4.11	5.00
Tomlinson's Best Fertilizer.....	8.00	3.70	7.00
Copeland's Magic Fertilizer.....	8.00	3.29	8.00
North State Special.....	8.00	3.29	4.00
Tomlinson's Favorite Fertilizer.....	8.00	2.88	5.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Tomlinson's Special Fertilizer.....	8.00	2.47	5.00
Magic Fertilizer	8.00	2.47	4.00
P. C. Co.'s Hustler.....	8.00	2.47	3.00
King Brand Fertilizer.....	8.00	2.06	3.00
White Leaf Tobacco Fertilizer.....	8.00	2.06	3.00
Powhatan Peanut Fertilizer.....	8.00	1.65	4.00
Magic Cotton Grower.....	8.00	1.65	2.00
Magic Special Fertilizer.....	8.00	1.65	2.00
Magic Tobacco Grower.....	8.00	1.65	2.00
Magic Peanut Special.....	8.00	.82	4.00
Magic Grain Special.....	8.00	.82	4.00
Magic Peanut Grower.....	8.00	....	4.00
Magic Grain and Grass Grower.....	8.00	....	4.00
Powhatan Bone and Potash Mixture.....	8.00	....	4.00
Powhatan Trucker	7.00	4.94	5.00
Copeland's Best Fertilizer.....	7.00	2.88	7.00
Copeland's Special Fertilizer.....	6.00	3.29	7.00
Sulphate of Ammonia.....	....	19.75	....
Nitrate of Soda.....	....	15.63	....
Muriate of Potash.....	....	....	50.00
Sulphate of Potash.....	....	....	48.00
High Grade German Potash.....	....	....	16.00
Pure German Kainit.....	....	....	12.00

Pine Level Oil Mill Co., Pine Level, N. C.—

Pine Level 16 Per Cent Acid Phosphate.....	16.00		
Pine Level 14 Per Cent Acid Phosphate.....	14.00	....	....
Bone and Potash Mixture.....	11.00	....	5.00
Bone and Potash Mixture.....	10.00	....	4.00
Sutton's Potato Guano.....	9.00	2.88	5.00
Xantho Tobacco Guano.....	8.00	3.30	4.00
Oliver's Truck Grower Guano.....	8.00	3.30	4.00
Hale's Special for Tobacco.....	8.00	2.47	4.00
Pine Level High Grade Fertilizer.....	8.00	2.47	3.00
Cotton Grower Fertilizer for All Crops.....	8.00	1.65	2.00
Sand Hill Special.....	6.00	2.47	3.00
H. G. Top Dresser.....	3.00	6.03	6.00
Nitrate of Soda.....	....	14.88	....
Muriate of Potash.....	....	....	48.00
Sulphate of Potash.....	....	....	48.00
Genuine German Kainit .....	....	....	12.00

Patapsco Guano Co., Baltimore, Md.—

Patapsco Pure Raw Bone.....Total	21.51	3.70	
Florida Soluble Phosphate.....	16.00	....	....
Patapsco Pure Dissolved S. C. Phosphate....	14.00	....	....
Patapsco High Grade Phosphate and Potash..	11.00	....	5.00
Baltimore Soluble Phosphate.....	11.00	....	2.00
Patapsco 10 and 4 Potash Mixture.....	10.00	....	4.00
Patapsco Soluble Phosphate and Potash.....	10.00	....	2.00
Patapsco Guano for Tobacco.....	9.25	2.06	2.00
Patapsco Guano	9.25	2.06	2.00
Tankage	9.15	7.41	....
Patapsco Tobacco Fertilizer.....	9.00	2.47	3.00
Patapsco Cotton and Corn Special.....	9.00	2.06	5.00
Patapsco Cotton Growers' Special.....	9.00	1.65	3.00
Coon Brand Guano.....	9.00	.82	3.00
Patapsco Cotton and Tobacco Special.....	8.00	3.29	4.00
Patapsco Plant Food for Tobacco, Potatoes and Truck	8.00	2.47	5.00
Patapsco Gold Leaf C. S. M. Mixture.....	8.00	2.47	3.00
Choctaw Guano	8.00	2.47	3.00

Name and Address of Manufacturer and Name of Brand.	Avall. Phos. Acid.	Nitrogen.	Potash.
Patapsco Special Tobacco Mixture.....	8.00	2.06	3.00
Unicorn Guano	8.00	2.06	3.00
Planters' Favorite	8.00	1.65	2.00
Sea Gull Ammoniated Guano.....	8.00	1.65	2.00
Grange Mixture for Cotton, C. S. M. Base....	8.00	1.65	2.00
Patapsco 7-7-7 Truck Guano.....	7.00	5.76	7.00
Patapsco Trucker for Early Vegetables.....	7.00	4.11	5.00
Money Maker Guano	7.00	3.70	6.00
Dry Ground Fish.....Total	6.00	8.23	....
Patapsco Potato Guano	6.00	4.11	7.00
Sulphate of Ammonia.....	....	20.16	....
Nitrate of Soda.....	....	15.00	....
Patapsco Top Dresser.....	....	7.41	3.00
Muriate of Potash.....	....	....	49.00
Sulphate of Potash.....	....	....	48.00
Genuine German Kainit.....	....	....	12.00

Pocahontas Guano Co., Lynchburg, Va.—

Fine Ground Bone Meal.....Total	23.00	2.47	....
Pure Raw Bone Meal.....Total	22.00	3.71	....
Carrington's S. C. Phosphate, Waukesha Brand	16.00	....	....
Imperial Dissolved S. C. Phosphate.....	14.00	....	....
Indian Special Grain and Grass Guano.....	12.00	....	5.00
Special Potash Mixture.....	10.00	....	5.00
Wabash Wheat Mixture.....	10.00	....	4.00
Carrington's Superior Grain Compound.....	10.00	....	2.00
Pocahontas Special Tobacco Fertilizer.....	9.00	2.47	3.00
High Grade 4 Per Cent Tobacco Compound			
Mohawk King	9.00	1.85	4.00
Yellow Tobacco Special.....	9.00	1.65	2.00
Standard Tobacco Guano, Old Chief Brand..	9.00	1.65	2.00
Planters' Special	9.00	.82	2.00
Indian Tobacco Grower.....	8.00	2.47	4.00
Farmers' Favorite Apex Brand.....	8.00	2.47	3.00
Special Truck Grower, Eagle Mount Brand...	8.00	2.06	6.00
Spot Cash Tobacco Compound.....	8.00	2.06	3.00
Truckers' Special	8.00	1.65	6.00
Carrington's Banner Brand Guano.....	8.00	1.65	2.00
A. A. Complete Champion Brand.....	8.00	1.00	3.00
Cherokee Grain Special.....	8.00	....	4.00
Nitrate of Soda.....	....	15.00	....
Muriate of Potash.....	....	....	49.00
Sulphate of Potash.....	....	....	48.00
Genuine German Kainit.....	....	....	12.00

Planters Cotton Seed Oil Co., Rocky Mount, N. C.—

Acid Phosphate	16.00	....	....
Acid Phosphate	14.00	....	....
J. P. D. Special.....	8.00	3.29	5.00
Gorham H. G.	8.00	3.29	4.00
Tar River Special	8.00	2.47	3.00
Planters' C. S. Oil Co.'s Tobacco Guano.....	8.00	2.47	3.00
Planters' Pride for Cotton	8.00	1.65	2.00
Planters' C. S. Oil Co.'s Cotton Guano.....	8.00	1.65	2.00
Planters' Peanut Mixture	8.00	1.21	5.00
Planters' Special Potato Guano.....	7.00	4.12	5.00
Braswell's Excelsior	7.00	3.29	6.00
E. L. D. Special.....	7.00	2.47	3.00
Braswell's Special for Tobacco.....	7.00	2.26	3.50
Planters' Top Dresser.....	3.50	7.82	3.00
Ground Fish Scrap.....	....	8.23	....

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Muriate of Potash.....	....	....	50.00
Sulphate of Potash.....	....	....	48.00
Genuine German Kainit.....	....	....	12.00
<i>Piedmont-Mt. Airy Guano Co., Baltimore, Md.—</i>			
Piedmont Bone Meal.....Total	21.00	3.29	....
Piedmont 16 Per Cent Acid Phosphate.....	16.00	....	....
Piedmont 14 Per Cent Acid Phosphate.....	14.00	....	....
Piedmont Special Potash Mixture.....	10.00	....	5.00
Levering's Potashed Bone.....	10.00	....	4.00
Piedmont Farmers' Bone and Potash.....	10.00	....	2.00
Piedmont Farmers' Standard.....	9.00	1.65	2.00
Piedmont Essential Tobacco Compound.....	9.00	1.65	2.00
Levering's Ammoniated Bone.....	9.00	.82	3.00
Piedmont Special Farmers' Tobacco Guano..	8.40	2.47	4.00
Piedmont Unexcelled Guano.....	8.00	3.29	4.00
Piedmont High Grade Ammoniated Bone and Potash	8.00	2.47	3.00
Levering's Reliable Tobacco Guano.....	8.00	2.47	3.00
Piedmont Guano for Tobacco	8.00	2.06	3.00
Piedmont Guano for All Crops.....	8.00	2.06	3.00
Levering's Standard	8.00	1.65	3.00
Piedmont Bone and Peruvian Mixture.....	8.00	1.65	2.00
Piedmont Special for Cotton, Corn and Pea- nuts	8.00	1.65	2.00
Piedmont Cultivator Brand.....	8.00	1.65	2.00
Piedmont Red Leaf Tobacco Guano.....	8.00	1.65	2.00
Piedmont Farmers' Favorite.....	8.00	.82	4.00
Piedmont Star Bone and Potash.....	8.00	....	5.00
Piedmont 7-7-7 Truck Guano.....	7.00	5.76	7.00
Piedmont 5-7-5 Guano.....	7.00	4.12	5.00
Piedmont Special Truck Fertilizer.....	6.00	5.76	7.00
Piedmont Special Potato Guano.....	6.00	4.94	7.00
Piedmont Early Vegetable Manure.....	6.00	4.12	7.00
Piedmont Early Trucker.....	6.00	4.12	5.00
Piedmont Vegetable Compound.....	6.00	3.29	8.00
Piedmont 7 Per Cent Truck Guano.....	5.00	5.76	3.00
Piedmont Potato Producer.....	5.00	2.47	6.00
Nitrate of Soda.....	....	15.23	....
Boykin's Top Dresser.....	....	7.41	3.00
Muriate of Potash.....	....	....	50.00
Sulphate of Potash.....	....	....	48.00
German Kainit .....	....	....	12.00

The Quinnepiac Co., Charleston, S. C.—

Standard Quinnepiac Acid Phosphate.....	13.00	....	....
Standard Quinnepiac Pine Island Ammoniated Superphosphate	9.00	1.85	1.00

The Robertson Fertilizer Co., Norfolk, Va.—

Robertson's Raw Bone Meal.....Total	21.00	3.71	....
High Peak Acid Phosphate.....	16.00	....	....
Scepter Brand Acid Phosphate.....	14.00	....	....
P. M. C. Acid Phosphate.....	13.00	....	....
J. W. S. Special Bone and Potash Mixture....	12.00	....	5.00
J. W. S. Alkaline Bone.....	10.00	....	5.00
Skyscraper Bone and Potash Compound.....	10.00	....	4.00
Level Run Dissolved Bone and Potash.....	10.00	....	2.00
Dodson's Choice H. G. Complete Manure....	9.00	2.47	3.00
Beaver Brand Soluble Guano.....	9.00	1.85	4.00
Robertson's Blood and Bone Mixture.....	9.00	1.00	2.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
P. M. C. High Grade Soluble Guano.....	8.00	4.12	7.00
Wood's Winner H. G. Guano.....	8.00	3.30	4.00
Robertson's Soluble H. G. Guano.....	8.00	2.47	4.00
Old Kentucky High Grade Tobacco Manure..	8.00	2.47	3.00
Robertson's Special Formula for Tobacco....	8.00	2.47	3.00
Big Cropper High Grade Guano.....	8.00	2.47	3.00
Robertson's X-(T Ray) Tobacco Grower....	8.00	2.06	2.00
Double Dollar Soluble Guano.....	8.00	1.65	2.00
Ten Strike Soluble Crop Grower.....	8.00	1.00	4.00
M. C. Special Bone and Potash Mixture.....	8.00	....	4.00
Robertson 5 Per Cent Guano.....	7.00	4.12	5.00
Robertson's 7 Per Cent for Truck.....	6.00	5.77	5.00
Robertson's 5-6-7	6.00	4.12	7.00
Robertson's 10 Per Cent Truck Guano.....	2.00	8.25	2.00
Nitrate of Soda.....	....	14.85	....
Blood .....	....	13.20	....
Genuine German Kainit .....	....	....	12.00

F. S. Royster Guano Co., Norfolk, Va.—

Pure Raw Bone Meal.....Total	21.50	3.71	....
Arrow Brand Thomas Phosphate.....Total	18.00	....	....
Royster's H. G. 17 Per Cent Acid Phosphate..	17.00	....	....
Royster's H. G. 16 Per Cent Acid Phosphate..	16.00	....	....
Royster's 14 Per Cent Acid Phosphate.....	14.00	....	....
Royster's Dissolved Bone.....	13.00	....	....
Royster's XX Acid Phosphate.....	12.00	....	....
Royster's 11 and 5 Bone and Potash Mixture..	11.00	....	5.00
Royster's Soluble Guano.....	10.00	1.65	2.00
Royster's 10 and 6 Bone and Potash Mixture..	10.00	....	6.00
Royster's 10 and 5 Bone and Potash Mixture..	10.00	....	5.00
Royster's 10 and 4 Bone and Potash Mixture..	10.00	....	4.00
Royster's Bone and Potash for Grain.....	10.00	....	3.00
Royster's Bone and Potash Mixture.....	10.00	....	2.00
M. P. F. Mixture.....	9.50	3.30	5.00
Royster's 4-9-5 Special	9.00	3.30	5.00
Tomlinson's Special	9.00	2.47	5.00
Surry Special Tobacco Grower.....	9.00	2.47	3.00
Piedmont Special Cotton Grower.....	9.00	2.47	3.00
Royster's Meal Mixture.....	9.00	2.26	2.00
Royster's Cotton Grower	9.00	2.26	2.00
Viking Ammoniated Guano.....	9.00	1.65	3.00
Special Compound	9.00	1.65	1.00
Royster's Grain Guano.....	9.00	.82	3.00
Royster's Special 1-9-2 Guano	9.00	.82	2.00
H. B. & Co.'s Special	8.00	4.69	10.00
Royster's Supreme Tobacco Guano.....	8.00	3.71	7.00
Royster's Best Guano.....	8.00	3.71	7.00
Cobb's High Grade for Tobacco.....	8.00	3.30	5.00
Trucker's Delight	8.00	3.30	4.00
Jupiter High Grade Guano.....	8.00	3.30	4.00
Royster's H. G. Special Tobacco Guano.....	8.00	3.30	4.00
Milo Tobacco Guano.....	8.00	3.30	4.00
Royster's Special 4-8-3.....	8.00	3.30	3.00
Gorham's Special	8.00	3.30	2.50
Eagle's Special Tobacco Guano.....	8.00	2.47	5.00
Marlboro High Grade Cotton Grower.....	8.00	2.47	3.00
Bonanza Tobacco Guano.....	8.00	2.47	3.00
Royster's Special Sweet Potato Guano.....	8.00	2.47	3.00
Orinoco Tobacco Guano.....	8.00	2.06	3.00
Special Tobacco Compound.....	8.00	2.06	2.00
Royster's Special Wheat Fertilizer.....	8.00	1.65	2.00
Royster's Complete Guano.....	8.00	1.65	2.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Farmers' Bone Fertilizer.....	8.00	1.65	2.00
Webb's Korn King.....	8.00	1.65	2.00
Farmers' Bone Fertilizer for Tobacco.....	8.00	1.65	2.00
Jumbo Peanut Grower.....	8.00	1.02	4.00
Royster's 8 and 4 Bone and Potash Mixture..	8.00	....	4.00
Battle's Favorite	7.25	3.91	5.25
Royster's Special 7 Per Cent Truck Guano...	7.00	5.77	7.00
Royster's Early Truck Guano.....	7.00	4.12	8.00
Royal Special Potato Guano.....	7.00	4.12	7.00
Royal Potato Guano.....	7.00	4.12	5.00
Royster's 7 and 5 Bone and Potash Mixture..	7.00	....	5.00
Royster's Peanut Special.....	7.00	....	5.00
Arrow Potato Guano.....	6.00	5.77	5.00
Royster's Irish Potato Guano.....	6.00	4.12	7.00
Yellow Bark Sweet Potato Guano.....	6.00	4.12	7.00
Royster's Special 5-6-5.....	6.00	4.12	5.00
Pasquotank Potato Guano.....	6.00	3.30	8.00
Oakley's Special Tobacco Guano.....	6.00	3.30	4.00
Royster's 2-6-5 Special.....	6.00	1.65	5.00
Wiggins' Special	5.50	3.30	3.00
Royster's Special 10 Per Cent Truck Guano..	5.00	8.24	3.00
Royster's Cabbage Guano.....	5.00	8.24	2.50
Harvey's Cabbage Guano.....	5.00	6.59	3.00
Royster's Potato Guano.....	5.00	4.94	7.00
Royster's Special 20 Per Cent Plant Food....	5.00	4.12	10.00
Phillips' Special	5.00	1.65	6.00
Royster's Ground Fish Scrap.....	4.00	8.24	....
Presto Top Dresser.....	4.00	8.22	4.00
Royster's Special Top Dresser.....	4.00	6.18	2.50
Royster's 4-6-4 Special.....	4.00	4.94	4.00
Currituck Sweet Potato Guano.....	4.00	2.47	8.00
Royster's 10-2-5 Top Dresser.....	2.00	8.22	5.00
Nitrate of Soda.....	....	15.22	....
Magic Top Dresser.....	....	7.42	3.00
Sulphate of Potash.....	....	....	48.00
Muriate of Potash.....	....	....	48.00
Manure Salts .....	....	....	20.00
Genuine German Kainit.....	....	....	12.00

Robersonville Guano Co., Robersonville, N. C.—

Roberson's H. G. Acid Phosphate.....	16.00		
Roberson's H. G. Tobacco Grower.....	8.00	2.47	3.00
Roberson's H. G. Meal and Fish Guano.....	8.00	2.47	3.00
Robinson's H. G. Cotton Grower.....	8.00	2.47	3.00
Roberson's Special 7-7-7 Potato Grower.....	7.00	5.77	7.00
Roberson's H. G. Truck Guano.....	7.00	4.12	5.00
Roberson's 7 Per Cent Potato Guano.....	6.00	5.77	5.00
Robersonville H. G. Top Dresser.....	4.00	8.23	3.00
Sulphate of Ammonia.....	....	20.50	....
Nitrate of Soda.....	....	15.60	....
Dried Blood .....	....	13.62	....
Fish Scrap .....	....	8.00	....
Muriate of Potash.....	....	....	50.00
Sulphate of Potash.....	....	....	48.00
Roberson's Genuine German Kainit.....	....	....	12.00

Robeson Manufacturing Co., Lumberton, N. C.—

Eureka	10.00	3.30	5.00
Stanby	8.00	3.30	4.00
Gold Dollar	8.00	3.30	4.00
Globe C. S. M. Guano.....	8.00	2.47	5.00
Silver Dollar	8.00	2.47	3.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Cottonade	8.00	2.47	3.00
Robeson's Special	8.00	1.65	3.00
Homerun Top Dresser	3.00	6.58	5.00
Genuine German Kainit .....	....	....	12.00

Richmond Guano Co., Richmond, Va.—

Pure Animal Bone.....Total	25.00	2.47	....
Pure Raw Bone Meal.....Total	22.50	3.70	....
Rex Dissolved Bone Phosphate.....	16.00	....	....
High Grade Acid Phosphate.....	14.00	....	....
Premium Bone and Potash Mixture.....	13.00	....	3.00
Premium Dissolved Bone.....	13.00	....	....
Premium Corn Special.....	12.00	1.00	2.00
Premium Wheat Special.....	12.00	1.00	2.00
H. G. Bone and Potash.....	12.00	....	5.00
Regal Bone and Potash Mixture.....	12.00	....	4.00
Old Homestead Dissolved Bone.....	12.00	....	....
Dissolved S. C. Phosphate.....	12.00	....	....
Premium Corn Grower.....	10.00	.82	1.00
Bone Mixture	10.00	.82	1.00
Johnson's Best Bone and Potash.....	10.00	....	5.00
Rex Bone and Potash Mixture.....	10.00	....	4.00
Bone and Potash Mixture.....	10.00	....	2.00
Sanders' Special Formula for Bright Tobacco.	9.00	2.88	5.00
Collins' Special Fertilizer.....	9.00	2.47	2.00
Carolina Cotton Grower.....	9.00	2.26	2.00
Burton's Special Tobacco Fertilizer.....	9.00	2.06	3.00
C. & B.'s Best Fertilizer.....	9.00	2.00	3.00
Bumper Crop Ammoniated Guano.....	9.00	1.65	3.00
Lowery's Special Fertilizer.....	9.00	1.65	3.00
Cracker Jack Fertilizer.....	9.00	1.65	2.00
Bone Mixture	9.00	1.65	1.00
Premium Cotton Grower.....	9.00	.82	3.00
Premium Wheat Grower.....	9.00	.82	2.00
Southern Trucker	8.00	4.11	5.00
Perfection Special	8.00	3.29	4.00
Beeson's Best Fertilizer.....	8.00	2.47	10.00
Carolina Bright Tobacco Fertilizer.....	8.00	2.47	3.00
Gilt Edge Fertilizer.....	8.00	2.47	3.00
Gilt Edge Tobacco Fertilizer.....	8.00	2.47	3.00
Carolina Bright Special Tobacco Fertilizer...	8.00	2.26	2.50
Tip Top Tobacco Fertilizer.....	8.00	2.06	3.00
Tip Top Fertilizer.....	8.00	2.06	3.00
Carolina Bright for Cotton.....	8.00	2.06	1.50
Special Premium Brand for Tobacco.....	8.00	1.85	2.25
Special Premium Brand for Plants.....	8.00	1.85	2.25
Beeson's Favorite Fertilizer.....	8.00	1.65	10.00
Beeson's Special Fertilizer.....	8.00	1.65	6.00
Rex Tobacco Fertilizer.....	8.00	1.65	4.00
Premium Cotton Fertilizer.....	8.00	1.65	2.00
Premium Tobacco Fertilizer.....	8.00	1.65	2.00
Premium Brand Fertilizer.....	8.00	1.65	2.00
Edgecombe Cotton Grower.....	8.00	1.65	2.00
Premium Grain Special.....	8.00	.82	4.00
Premium Peanut Special.....	8.00	.82	4.00
Premium Peanut Grower.....	8.00	....	4.00
Tip Top Bone and Potash Mixture.....	8.00	....	4.00
Winter Grain and Grass Grower.....	8.00	....	4.00
Clark's Special Formula.....	7.00	4.94	6.00
Special High Grade for Truck.....	7.00	4.94	5.00
10 Per Cent Cabbage Guano.....	6.00	8.23	2.00
Smith's 7 Per Cent Special.....	6.00	5.76	5.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Edwards' Prolific Cotton Grower.....	6.00	3.29	4.00
Carter's Special for Tobacco.....	4.00	2.47	6.00
Smith's Special Fertilizer.....	4.00	1.65	7.00
Sulphate of Ammonia.....	....	19.75	....
Nitrate of Soda.....	....	15.63	....
Special Top Dresser.....	....	7.40	3.00
Muriate of Potash.....	....	....	50.00
Sulphate of Potash.....	....	....	48.00
High Grade German Potash.....	....	....	16.00
Pure German Kainit.....	....	....	12.00

*Ruhm Phosphate Mining Co., Mount Pleasant,
Pa.—*

Ground Phosphate Rock.....Total	28.00		
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Red Cross Guano Co., Lynchburg, Va.—

Pure Raw Bone Meal.....Total	22.00	3.71	
Red Cross Bone Meal.....Total	22.00	3.00	
Red Cross H. G. Phosphate.....	16.00	....	....
Red Cross Standard Phosphate.....	14.00	....	....
Red Cross Grain Grower.....	10.00	....	4.00
Red Cross Bone and Potash.....	10.00	....	2.00
Red Cross High Grade for Tobacco.....	9.00	2.47	3.00
Red Cross for Tobacco and Truck.....	9.00	1.85	4.00
Red Cross for Bright Tobacco.....	9.00	1.65	2.00
Red Cross Special for Tobacco.....	8.00	2.47	3.00
Red Cross Tobacco Guano.....	8.00	2.06	3.00
Red Cross Crop Grower.....	8.00	1.65	2.00
Red Cross Grain and Grass Special.....	8.00	1.00	3.00

Rasin-Monumental Co., Baltimore, Md.—

Rasin 16 Per Cent Acid Phosphate.....	16.00	....	....
Rasin 14 Per Cent Acid Phosphate.....	14.00	....	....
Rasin 13 Per Cent Acid Phosphate.....	13.00	....	....
Rasin H. G. Bone and Potash.....	12.00	....	5.00
Rasin's 10-4-4	10.00	3.30	4.00
Rasin Seawall Alkaline Phosphate.....	10.00	....	6.00
Rasin Special Bone and Potash.....	10.00	....	5.00
Rasin's 10-4 Bone and Potash.....	10.00	....	4.00
Rasin Bone and Potash.....	10.00	....	2.00
Rasin's Dixie Cotton Guano.....	9.00	2.26	2.00
Rasin Dixie Guano.....	9.00	1.65	2.00
Baltimore Special Mixture.....	9.00	.82	2.00
Victoria Guano	8.00	3.30	4.00
Rasin H. G. Guano.....	8.00	3.29	4.00
Cotton Compound	8.00	2.47	3.00
Rasin's Indian Brand for Tobacco.....	8.00	2.47	3.00
Rasin Gold Standard.....	8.00	2.47	3.00
Rasin Complete Fertilizer	8.00	2.47	3.00
Rasin Special Fertilizer.....	8.00	2.06	3.00
Rasin's General Tobacco Grower.....	8.00	2.06	3.00
Rasin's 8-2-2	8.00	1.65	2.00
Rasin Empire Guano.....	8.00	1.65	2.00
Rasin Irish Potato Special.....	7.00	3.29	8.00
Rasin Truckers' Mixture	6.00	5.77	5.00
Nitrate of Soda.....	....	14.82	....
Muriate of Potash.....	....	....	48.00
Sulphate of Potash.....	....	....	48.00
Rasin Genuine German Kainit.....	....	....	12.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
<i>Read Phosphate Co., Charleston, S. C.—</i>			
Read's H. G. Dissolved Bone.....	16.00	....	....
Read's H. G. Acid Phosphate.....	14.00	....	....
Read's Bone and Potash.....	10.00	....	4.00
Read's Alkaline Bone.....	10.00	....	2.00
Read's Manipulated Guano.....	9.00	1.65	3.00
Read's Ammoniated Dissolved Bone.....	8.00	3.30	6.00
Read's H. G. Guano.....	8.00	3.30	4.00
Read's H. G. Tobacco Leaf.....	8.00	2.47	3.00
Read's H. G. Cotton Grower.....	8.00	2.47	3.00
Read's Soluble Fish Guano.....	8.00	1.65	2.00
Read's Blood and Bone Fertilizer, No. 1.....	8.00	1.62	2.00
Read's Special Potash Mixture.....	8.00	....	4.00
Nitrate of Soda.....	....	19.00	....
Muriate of Potash.....	....	....	48.00
German Kainit .....	....	....	12.00

Reidsville Fertilizer Co., Reidsville, N. C.—

Reidsville Acid	16.00		
Acid and Potash.....	14.00	....	3.00
Harvest King	10.00	.82	4.00
Acid and Potash.....	10.00	....	4.00
Bone and Potash.....	10.00	....	4.00
Bone and Potash.....	10.00	....	2.00
Acid and Potash.....	10.00	....	2.00
Lion Brand Fertilizer.....	9.00	2.47	6.00
Reidsville Hustler	9.00	.82	2.00
Reidsville 4-8-4	8.00	3.31	4.00
Reidsville Best	8.00	3.30	8.00
Farmers Tobacco Fertilizer.....	8.00	2.47	3.00
Royal Fertilizer	8.00	2.47	3.00
Climax Fertilizer	8.00	2.06	3.00
Broad Leaf Tobacco Guano.....	8.00	1.85	2.50
Banner Fertilizer.....	8.00	1.65	2.00
Champion Guano	8.00	1.65	2.00
Reidsville Champion	8.00	1.65	2.00
J. H. Burton's Special.....	8.00	.82	3.00
Bone and Potash.....	8.00	....	4.00
Acid and Potash.....	8.00	....	4.00
Silver Leaf Tobacco Special.....	7.00	2.88	5.00
Reidsville Top Dresser.....	5.00	4.94	1.75

Swift Fertilizer Works, Atlanta, Ga., Wilmington, N. C., and Chester, S. C.—

Swift's Raw Bone Meal.....Total	23.00	3.70	....
Swift's Pure Bone Meal.....Total	23.00	2.47	....
Swift's Special	16.00	....	....
Swift's Cultivator	14.00	....	....
Swift's Harrow	13.00	....	....
Swift's North Carolina Special.....	12.00	1.65	2.00
Swift's Special	12.00	....	6.00
Swift's Atlanta	12.00	....	4.00
Swift's Chattahoochee	12.00	....	....
Swift's Farmers' Special	10.00	3.29	4.00
Swift's Corn and Cotton Grower.....	10.00	2.47	3.00
Swift's Eagle	10.00	1.65	2.00
Swift's Planter's Special	10.00	.82	3.00
Swift's Plow Boy	10.00	.82	1.00
Swift's Atlanta	10.00	....	5.00
Swift's Farmer's Home	10.00	....	4.00
Swift's Field and Farm.....	10.00	....	2.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Swift's Wheat Grower	10.00	....	2.00
Swift's Special	9.50	4.12	3.00
Swift's Blood, Bone and Potash.....	9.50	3.29	7.00
Swift's Champion	9.00	2.47	4.00
Swift's Special Cotton Grower.....	9.00	2.47	3.00
Swift's Cotton King	9.00	2.47	2.00
Swift's Special Cotton Guano.....	9.00	2.26	2.00
Swift's Gold Medal	9.00	1.65	3.00
Swift's Farmer's Favorite	9.00	1.65	3.00
Swift's Cotton Plant	9.00	1.65	1.00
Swift's Special Formula	9.00	.82	2.00
Swift's Cape Fear	8.00	4.12	2.00
Swift's Monarch	8.00	3.29	4.00
Swift's Majestic	8.00	3.29	4.00
Swift's Quick Grower Tobacco Fertilizer....	8.00	3.29	2.00
Swift's Strawberry Grower	8.00	2.47	10.00
Swift's Piedmont	8.00	2.47	6.00
Swift's Carter's Prolific	8.00	2.47	4.00
Swift's Carolina Tobacco Grower.....	8.00	2.47	3.00
Swift's Ruralist	8.00	2.47	3.00
Swift's Plow Boy	8.00	2.47	3.00
Swift's Gold Leaf Tobacco Grower	8.00	2.06	3.00
Swift's Braswell's Formula	8.00	2.06	2.50
Swift's Sumatra Tobacco Grower.....	8.00	2.06	2.00
Swift's Bright Leaf Tobacco Grower.....	8.00	1.65	5.00
Swift's Pioneer Tobacco Grower.....	8.00	1.65	4.00
Swift's Clark's Special Cotton Grower.....	8.00	1.65	3.00
Swift's Red Steer	8.00	1.65	2.00
Swift's Golden Harvest	8.00	1.65	2.00
Swift's Thompson's Special	8.00	.82	5.00
Swift's Special Peanut Grower.....	8.00	.82	4.00
Swift's Plantation	8.00	....	4.00
Swift's Carolina 7 Per Cent Special Trucker..	7.00	5.76	7.00
Swift's Special Irish Potato Grower.....	7.00	4.12	8.00
Swift's Potato Grower	7.00	4.12	7.00
Swift's Early Trucker	7.00	4.12	5.00
Swift's Special Trucker	6.00	5.76	5.00
Swift's Favorite Truck Guano.....	6.00	4.94	6.00
Swift's Special Potato Grower.....	6.00	4.12	7.00
Swift's Special Tobacco Grower	6.00	3.29	6.00
Swift's Special 10 Per Cent Blood and Bone Trucker	5.00	8.23	3.00
Swift's Superior Top Dresser.....	5.00	8.23	3.00
Swift's Plant Bed Tobacco Fertilizer	5.00	6.58	2.00
Swift's Fruiter Top Dresser.....	5.00	4.94	2.50
Swift's No. 1 Ground Tankage.....	4.50	8.24	....
Swift's Excelsior Top Dresser.....	4.00	6.18	2.00
Swift's Everett's Special Formula.....	4.00	3.29	3.00
Swift's Pure Nitrate of Soda.....	....	14.82	....
Swift's Ground Dried Blood.....	....	13.18	....
Swift's Special Top Dresser.....	....	7.40	4.00
Swift's Nitrogen and Potash, No. 1.....	....	7.40	3.00
Swift's Nitrogen and Potash, No. 2.....	....	6.58	4.00
Swift's Muriate of Potash.....	....	....	50.00
Swift's Sulphate of Potash.....	....	....	49.00
Swift's Pure German Kainit .....	....	....	12.00

Southern Chemical Co., Inc., Roanoke, Va.—

Pride of Virginia.....	8.00	2.47	3.00
Valley Queen	8.00	1.65	10.00
Farmer's Joy	8.00	1.65	4.00
Our Favorite	8.00	1.65	2.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
<i>Spartanburg Fertilizer Co., Spartanburg, S. C.—</i>			
16 Per Cent Acid Phosphate	16.00	....	....
14 Per Cent Acidulated Phosphate.....	14.00	....	....
West's Potash Acid	13.00	....	3.00
13-3 Potash Acid	13.00	....	3.00
Nitro Blood	12.00	1.65	2.50
Staff of Life	12.00	.82	3.00
12-6	12.00	....	6.00
Wheat Formula	11.00	1.23	5.00
Gosnell's Plant Food	10.50	2.46	2.00
N. C. Special	10.50	1.65	8.00
Corn Formula	10.50	1.65	5.00
King Tiger	10.00	1.65	3.00
10-4	10.00	....	4.00
Dana's Best	10.00	....	4.00
Melrose	10.00	....	2.00
10-2	10.00	....	2.00
Hummer	9.00	1.65	3.00
Boll Buster	9.00	1.65	2.00
Grain Compound	9.00	1.65	2.00
Unaka	8.00	3.29	4.00
Glencoe	8.00	2.46	3.00
I. X. L. Plant Food.....	8.00	1.65	2.00
Potato Guano	7.00	2.46	7.00
Sulphate Ammonia .....	....	20.65	....
Nitrate of Soda .....	....	14.81	....
Muriate of Potash .....	....	....	48.00
Kainit .....	....	....	12.00
<i>Scotland Neck Guano Co., Scotland Neck, N. C.—</i>			
Our 16 Per Cent Acid Phosphate.....	16.00	....	....
Our Bone and Potash Mixture.....	10.00	....	4.00
Biggs' H. G. Truck Guano.....	8.00	4.12	5.00
Noah Biggs C. S. M. and Fish Scrap Guano..	8.00	3.30	4.00
State Farm C. S. M. and Fish Scrap Tobacco Guano	8.00	2.47	3.00
Carolina C. S. M. and Fish Scrap Guano.....	8.00	2.47	3.00
Farmers' C. S. M. and Fish Scrap Guano....	8.00	2.06	2.50
Our Special C. S. M. Guano.....	8.00	1.65	2.00
Johnson's Special Potato Guano.....	7.00	5.77	7.00
Our Best Peanut Guano	5.50	1.23	5.50
K. Elite Top Dressing	3.00	7.40	3.50
Nitrate of Soda .....	....	15.50	....
Noah Biggs Top Dresser.....	....	7.46	4.00
Our Genuine German Kainit.....	....	....	12.00
<i>L. A. Stoney, Raleigh, N. C.—</i>			
"Out of Sight"	14.00	....	....
"Up Early"	12.00	....	4.00
"Ace of Trumps".....	10.00	2.41	2.00
"More-to-Bae" Special "Up to Snuff".....	8.00	3.30	4.25
"Get There"	8.00	3.28	3.00
"Old \$ Bill"	6.75	4.72	5.00
"Hoe Cake"	6.50	4.93	4.50
"On the Spot"	5.50	5.75	5.00
"I Win"	4.00	5.75	9.00
<i>The Southern Exchange Co., Marton, N. C.—</i>			
S. E. C. Acid Phosphate.....	16.00	....	....
S. E. C. Acid Phosphate.....	14.00	....	....
S. E. C. Bone and Potash Mixture.....	10.00	....	4.00
S. E. C. Bone and Potash Mixture.....	10.00	....	2.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Juicy Fruit Fertilizer	9.00	1.85	4.00
The Walnut Fertilizer	8.50	2.06	2.50
Melon Grower	8.00	4.11	7.00
McKimmion's Special Truck Formula	8.00	4.11	7.00
Two Fours Guano	8.00	3.29	4.00
Southern Exchange Co.'s Bright Tobacco Formula	8.00	2.47	4.00
That Big Stick Guano	8.00	2.47	4.00
Bull of the Woods Fertilizer	8.00	2.47	4.00
Jack's Best Fertilizer	8.00	2.47	3.00
Correct Cotton Compound	8.00	2.47	3.00
R. M. C. Special Crop Grower	8.00	2.47	3.00
Southern Exchange Co.'s Special Tobacco Fertilizer	8.00	1.65	3.00
Currie Crop Lifter	8.00	1.65	3.00
The Racer Guano	8.00	1.65	3.00
The Coon Guano	8.00	1.65	2.00
Nitrate of Soda .....	....	15.00	....
Muriate of Potash .....	....	....	49.00
Genuine German Kainit .....	....	....	12.00

H. T. Shammonhouse, Hertford, N. C.—

Acid Phosphate	16.00	....	....
Full Value	8.00	3.29	4.00
Southern Pride	8.00	2.47	3.00
Carolina's Choice	8.00	2.47	3.00
Square Deal	8.00	1.65	2.00
Farmers' Money Maker	8.00	1.65	2.00
High Grade	6.00	4.11	5.00
Genuine German Kainit .....	....	....	12.00

*The Southern Cotton Oil Co., Concord, Davidson,
Shelby, Gibson, Monroe and Wadesboro—*

Southern Cotton Oil Co.'s 16 Per Cent Acid Phosphate	16.00	....	....
Gold Seal Acid Phosphate	14.00	....	....
Silver King Acid Phosphate	13.00	....	....
Conqueror Bone and Potash	10.00	....	4.00
Magnolia Bone and Potash	10.00	....	2.00
Uncle Sam	9.00	2.47	3.00
Home Made	9.00	2.05	3.00
Razem	9.00	1.65	3.00
King Bee	9.00	1.65	2.00
Choice	8.00	3.30	6.00
Conqueror	8.00	3.30	4.00
Canto	8.00	3.29	6.00
Melonite	8.00	3.29	4.00
Peacock	8.00	2.47	3.00
Moon	8.00	2.47	3.00
Landsake	8.00	2.47	2.50
Red Bull	8.00	2.06	2.00
All-to-Good	8.00	2.05	3.00
Gloria	8.00	1.65	2.00
Double Two	8.00	1.65	2.00
Dandy Top Dresser	4.00	9.07	2.50
Peerless Top Dresser	4.00	6.17	2.50
Nitrate of Soda .....	....	15.00	....
Nitrate of Soda .....	....	13.20	....
Labi .....	....	8.99	17.00
Muriate of Potash .....	....	....	48.00
Sulphate of Potash .....	....	....	48.00
Genuine German Kainit .....	....	....	12.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
<i>Southern Cotton Oil Co., Spartanburg and Greenville, S. C.—</i>			
S. C. O. Co.'s H. G. D. B.	16.00	....	....
Golden Fleece H. G. A. P.	14.00	....	....
The Boss	10.00	3.29	4.00
Spartan Favorite H. G.	10.00	2.47	4.00
S. C. O.'s No. 1024.....	10.00	1.65	4.00
Quick Step Acid with Potash.....	10.00	....	4.00
Palmetto Acid with Potash.....	10.00	....	2.00
Pride of the South.....	9.00	2.47	3.00
Spartan Hustler	9.00	1.65	3.00
Palmetto Standard	8.88	1.65	2.00
Sunrise High Grade	8.00	4.11	7.00
Quick Step H. G.	8.00	3.29	4.00
S. C. O. Co.'s No. 835.....	8.00	2.47	5.00
Golden Fleece H. G.	8.00	2.47	3.00
Standard Grain Grower	8.00	.85	4.00
S. C. O. Co.'s Acid with Potash.....	8.00	....	4.00
S. C. O. Co.'s Top Dresser.....	4.00	6.18	4.00
S. C. O. Co.'s Nitrate of Soda.....	....	14.82	....
S. C. O. Co.'s Muriate of Potash.....	....	....	48.00
S. C. O. Co.'s German Kainit.....	....	....	12.00
<i>Southern Cotton Oil Co., Charlotte, N. C.—</i>			
T. C. Lee & Co. Cotton and Corn Fertilizer..	8.00	1.65	2.00
Gordon & Pressons Cotton and Corn Fertilizer	8.00	1.65	2.00
S. B. Hart's Cotton and Corn Fertilizer.....	8.00	1.65	2.00
Collins & Biggers' Cotton and Corn Fertilizer.	8.00	1.65	2.00
Coöperative Merchants Co.....	8.00	1.65	2.00
Marsh Bros.' Cotton and Corn Fertilizer.....	8.00	1.65	2.00
David Ross Co. Cotton and Corn Fertilizer...	8.00	1.65	2.00
J. L. Austin & Co. Cotton and Corn Fertilizer.	8.00	1.65	2.00
<i>Southern Cotton Oil Co., Goldsboro, Fayetteville, Rocky Mount and Wilson—</i>			
Southern Cotton Oil Co.'s 16 Per Cent Acid Phosphate	16.00	....	....
Southern Cotton Oil Co.'s 14 Per Cent Acid Phosphate	14.00	....	....
Best & Thompson's Special Cotton Grower...	9.00	2.27	2.00
Goldsboro Cotton Grower	9.00	2.27	2.00
Southern Cotton Oil Co.'s Special for Tobacco.	8.00	3.71	7.00
Goldsboro Oil Mill Special Mixture.....	8.00	3.30	4.00
Fayetteville Oil Mill Special Mixture.....	8.00	3.30	4.00
Wilson Oil Mill Special Mixture.....	8.00	3.30	4.00
Southern Cotton Oil Co.'s Special Mixture...	8.00	3.30	4.00
Rocky Mount Oil Mill Special Mixture.....	8.00	3.30	4.00
Southern Cotton Oil Co.'s Melon Grower.....	8.00	2.47	10.00
Southern Cotton Oil Co.'s Special Cotton Grower	8.00	2.47	3.00
Best & Thompson's High Grade.....	8.00	2.47	3.00
Goldsboro Oil Mill Special Cotton Grower...	8.00	2.47	3.00
Fayetteville Oil Mill Special Cotton Grower..	8.00	2.47	3.00
Wilson Oil Mill Special Cotton Grower.....	8.00	2.47	3.00
Rocky Mount Oil Mill Special Cotton Grower.	8.00	2.47	3.00
B. G. Thompson's Special Cotton and Tobacco Guano	8.00	2.47	3.00
Egerton's Old Reliable	8.00	2.47	3.00
Morning Glory	8.00	2.47	3.00
Goldsboro Oil Mill High Grade.....	8.00	2.47	3.00
Fayetteville Oil Mill High Grade.....	8.00	2.47	2.50
Wilson Oil Mill High Grade.....	8.00	2.27	2.50

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
The Southern Cotton Oil Co. High Grade.....	8.00	2.27	2.50
Halifax Peanut Grower.....	8.00	1.65	5.00
Southern Cotton Oil Co.'s Peanut Grower....	8.00	1.65	4.00
Goldsboro Oil Mill Standard.....	8.00	1.65	2.00
Fayetteville Oil Mill Standard.....	8.00	1.65	2.00
Wilson Oil Mill Standard.....	8.00	1.65	2.00
Rocky Mount Oil Mill Standard.....	8.00	1.65	2.00
The Southern Cotton Oil Co. Standard.....	8.00	1.65	2.00
Southern Cotton Oil Co.'s Truck Grower.....	6.00	4.12	7.00
Southern Special for Tobacco.....	6.00	2.90	6.00
Southern Cotton Oil Co. Top Dresser.....	4.00	8.25	4.00
Rocky Mount Top Dresser.....	....	7.43	4.00

Tidewater Guano Co., Norfolk, Va.—

Tidewater Raw Bone Meal.....Total	21.00	3.71	
Top Rail Acid Phosphate.....	16.00	....	....
Buster Brown Acid Phosphate.....	14.00	....	....
J. W. S. Acid Phosphate.....	13.00	....	....
Tidewater Bone and Potash.....	10.00	....	5.00
Diana Brand Bone and Potash Compound....	10.00	....	4.00
Bully Boy Dissolved Bone and Potash.....	10.00	....	2.00
Diana Brand Soluble Guano.....	8.00	3.30	6.00
High Tide Soluble Guano.....	8.00	3.30	4.00
Sho Nuf Guano High Grade Complete Manure.	8.00	2.47	3.00
Hawk Eye Soluble Guano.....	8.00	2.07	2.00
Soil King Special Guano.....	8.00	1.85	4.00
Double Action Soluble Guano.....	8.00	1.65	2.00
"Good Money" Complete Guano.....	8.00	1.00	4.00
Tidewater Truck Guano.....	7.00	4.12	5.00
Tidewater 4-6-4 Guano.....	6.00	3.30	4.00
Nitrate of Soda.....	....	14.85	....
Blood .....	....	13.20	....
Muriate of Potash.....	....	....	50.00
Sulphate of Potash.....	....	....	48.00
Genuine German Kainit.....	....	....	12.00

Tuscarora Fertilizer Co., Atlanta, Ga., and Wilmington, N. C.—

Bone Meal	24.00	2.47	....
Raw Bone Meal.....Total	22.00	3.70	....
Acid Phosphate	17.00	....	....
Acid Phosphate	16.00	....	....
Acid Phosphate	14.00	....	....
Acid Phosphate	13.00	....	....
Tuscarora Phosphate and Potash.....	12.00	....	6.00
Tuscarora Acid Phosphate.....	12.00	....	....
Tuscarora Fertilizer, No. 1044.....	10.00	3.30	4.00
Tuscarora Fertilizer No. 1025.....	10.00	1.65	5.00
Tuscarora Fertilizer, No. 1022.....	10.00	1.65	2.00
Tuscarora Phosphate and Potash.....	10.00	....	6.00
Tuscarora Alkaline Bone.....	10.00	....	5.00
Tuscarora Acid Potash.....	10.00	....	4.00
Tuscarora Bone and Potash.....	10.00	....	2.00
Tuscarora Chief	9.00	1.65	3.00
Fertilizer, No. 913.....	9.00	.82	3.00
Tuscarora Trucker	8.00	4.11	7.00
Fertilizer, No. 844.....	8.00	3.30	4.00
Fertilizer No. 8310.....	8.00	2.47	10.00
Tuscarora, No. 836, for Tobacco.....	8.00	2.47	6.00
Boon's Special	8.00	2.47	4.00
Tobacco Special	8.00	2.47	3.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Cotton Special	8.00	2.47	3.00
Fertilizer, No. 833.....	8.00	2.47	3.00
Tuscarora Blood and Bone.....	8.00	2.47	3.00
Berry King	8.00	2.05	4.00
Tuscarora Tobacco Fertilizer.....	8.00	2.05	3.00
Tuscarora Champion	8.00	2.05	2.50
Tuscarora Champion Tobacco Grower.....	8.00	2.05	2.50
King Cotton	8.00	2.05	2.00
Tuscarora Fruit and Potato.....	8.00	1.65	10.00
Tuscarora Fertilizer, No. 825.....	8.00	1.65	5.00
Fertilizer, No. 823.....	8.00	1.65	3.00
Tuscarora Standard	8.00	1.65	2.00
Tuscarora Standard Tobacco Grower.....	8.00	1.65	2.00
Fertilizer, No. 815.....	8.00	.82	5.00
Fertilizer, No. 813.....	8.00	.82	3.00
Tuscarora Bone and Potash.....	8.00	....	5.00
Tuscarora Bone and Potash.....	8.00	....	4.00
Big Four (4) Fertilizer.....	7.00	1.65	4.00
Manure Substitute	6.00	3.30	4.00
Tuscarora Complete Top Dresser.....	4.00	6.18	2.50
Tankage	2.00	8.24	....
Nitrate of Soda.....	....	14.81	....
Dried Blood .....	....	13.16	....
Tuscarora Top Dresser.....	....	7.83	4.00
Tuscarora Chief Top Dresser.....	....	7.40	3.00
Muriate of Potash.....	....	....	50.00
Sulphate of Potash.....	....	....	50.00
Kainit .....	....	....	12.00

Union Guano Co., Winston-Salem, N. C.—

Pure Raw Animal Bone Meal.....	20.60	3.71	....
Union 16 Per Cent Acid Phosphate.....	16.00	....	....
Union High Grade Acid Phosphate.....	14.00	....	....
Dissolved Animal Bone Meal.....	13.00	2.06	....
Union Dissolved Bone.....	13.00	....	....
Union 12-6 Bone and Potash.....	12.00	....	6.00
Union 12-5 Bone and Potash.....	12.00	....	5.00
Union 12-4 Bone and Potash.....	12.00	....	4.00
Union 12-3 Bone and Potash.....	12.00	....	3.00
Union 12-2 Bone and Potash.....	12.00	....	2.00
Union 12 Per Cent Acid Phosphate.....	12.00	....	....
Liberty Bell Crop Grower.....	10.50	....	1.50
Union Prolific Cotton Compound.....	10.00	3.29	4.00
Union Special Formula for Cotton.....	10.00	2.47	3.00
Union Mule Brand Guano.....	10.00	1.65	2.00
Grain Chemicals	10.00	1.03	6.00
Union 10-6 Bone and Potash.....	10.00	....	6.00
Union 10-5 Bone and Potash.....	10.00	....	5.00
Union 10-4 Bone and Potash.....	10.00	....	4.00
Quakers Grain Mixture.....	10.00	....	4.00
Giant Phosphate and Potash.....	10.00	....	3.00
Finch & Harris's Special Bone and Potash Mixture	10.00	....	3.00
Union Bone and Potash.....	10.00	....	2.00
Union Renown Guano.....	9.00	2.47	3.00
Union Perfect Cotton Grower.....	9.00	2.26	2.00
Union Complete Cotton Mixture.....	9.00	1.65	3.00
Farmers' Blood and Bone Guano.....	9.00	1.65	3.00
Dixie Cotton Grower.....	9.00	1.65	2.00
Q. and Q. (Quality and Quantity) Guano.....	9.00	1.65	1.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
B. S. Ammoniated Guano.....	9.00	.82	3.00
Union Guano for Cotton and Tobacco.....	8.00	3.29	6.00
Union Premium Guano.....	8.00	3.29	4.00
Union Homestead Guano.....	8.00	2.47	3.00
Victoria High Grade Tobacco Fertilizer.....	8.00	2.47	3.00
Union Water Fowl Guano.....	8.00	2.06	3.00
Union Standard Tobacco Grower.....	8.00	2.06	2.00
Union Potato Mixture.....	8.00	1.65	10.00
Old Honesty Guano.....	8.00	1.65	2.00
Fish Brand Ammoniated Guano for Tobacco..	8.00	1.65	2.00
Old Honesty Tobacco Guano.....	8.00	1.65	2.00
Fish Brand Ammoniated Guano.....	8.00	1.65	2.00
Union Superlative Guano.....	8.00	.82	4.00
Sunrise Ammoniated Guano.....	8.00	.82	3.00
Union 8-5 Bone and Potash.....	8.00	....	5.00
Union Wheat Mixture.....	8.00	....	4.00
Union Vegetable Compound.....	7.00	4.12	8.00
Union Truck Guano.....	7.00	3.29	5.00
Complete Mixture for Top Dressing.....	4.00	6.18	4.00
Special 10 Per Cent Top Dresser.....	2.00	8.24	2.50
Nitrate of Soda.....	....	14.82	....
Union Top Dresser.....	....	7.42	3.00
Muriate of Potash.....	....	....	48.00
Sulphate of Potash.....	....	....	48.00
Genuine German Kainit.....	....	....	12.00

United States Fertilizer Co., Baltimore, Md.—

Raw Bone Meal.....Total	22.50	3.69	....
Farm Bell Acid Phosphate.....	16.00	....	....
Farm Bell Acid Phosphate.....	14.00	....	....
Farm Bell Phospho. Potassa.....	12.00	....	5.00
Farm Bell Potash and Acid.....	10.00	....	6.00
Farm Bell 10-5 Mixture.....	10.00	....	5.00
Farm Bell Special Mixture.....	10.00	....	4.00
Farm Bell Alkaline Mixture.....	10.00	....	2.00
Farm Bell Big Yield.....	9.00	2.47	4.06
Farm Bell Buckeye Guano.....	9.00	.82	2.00
Farm Bell Blood, Bone and Potash.....	8.00	4.11	7.00
Farm Bell Excelsior Guano.....	8.00	3.28	7.00
Farm Bell Majestic Guano.....	8.00	3.28	4.00
Farm Bell Tobacco Fertilizer.....	8.00	2.47	4.00
Farm Bell Cotton Special.....	8.00	2.47	3.00
Farm Bell Tobacco Special.....	8.00	2.47	3.00
Farm Bell Tomato Special.....	8.00	2.06	3.00
Farm Bell Crop Grower.....	8.00	2.06	3.00
Farm Bell Fruit and Potato.....	8.00	1.65	10.00
Farm Bell Animal Ammoniated.....	8.00	1.65	5.00
Farm Bell Standard Guano.....	8.00	1.65	2.00
Farm Bell Wheat, Oat, Corn Special.....	8.00	.82	6.00
Farm Bell Pennant Winner.....	8.00	.82	4.00
Farm Bell Phosphate and Potash.....	8.00	....	5.00
Farm Bell Wheat and Grass Grower.....	8.00	....	4.00
Farm Bell Truckers' Ideal.....	7.00	4.11	8.00
Farm Bell Potato and Tobacco Guano.....	7.00	2.47	10.00
Farm Bell Klimax Kompound.....	7.00	.82	4.00
Farm Bell 7 Per Cent Trucker.....	6.00	5.75	5.00
Farm Bell Trucker's Favorite.....	6.00	3.28	8.00
Farm Bell Top Dresser.....	4.00	6.56	2.00
Sulphate of Ammonia.....	....	20.50	....
Nitrate of Soda.....	....	15.50	....

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Sulphate of Potash			50.00
Muriate of Potash			48.00
Kainit			12.00

Union Abattoir Co., Norfolk, Va.—

Red Star Acid Phosphate.....	16.00	....	....
Red Star Acid Phosphate.....	14.00	....	....
Red Star Potash and Soluble Bone.....	10.00	....	4.00
Red Star H. G. Guano.....	8.75	2.00	2.00
Red Star Brand Cotton Guano.....	8.00	3.28	4.00
Red Star Cotton Guano.....	8.00	2.50	1.00
Red Star Cotton and Tobacco Guano.....	8.00	2.46	3.00
Red Star Standard	8.00	2.00	2.00
Red Star 7 Cent Guano.....	6.00	5.74	5.00
Nitrate of Soda .....	....	15.23	....
Muriate of Potash .....	....	....	50.00

R. L. Upshur Guano Co., Norfolk, Va.—

Upshur's 16 Per Cent Acid Phosphate.....	16.00	....	....
Upshur's 14 Per Cent Acid Phosphate.....	14.00	....	....
Upshur's 10-4 Bone and Potash.....	10.00	....	4.00
Upshur's 10-2 Bone and Potash.....	10.00	....	2.00
Upshur's Cotton-seed Meal Mixture	9.00	2.26	2.00
Upshur's Special 8-4-4	8.00	3.29	4.00
Upshur's 8-3-3 Cotton Guano.....	8.00	2.47	3.00
Upshur's High Grade Tobacco Guano.....	8.00	2.47	3.00
Upshur's O. P. (Old Plantation).....	8.00	2.06	3.00
Upshur's Fish, Bone and Potash.....	8.00	1.65	4.00
Upshur's Peanut Guano	8.00	1.65	2.00
Upshur's G., G. & C. (Grain, Grass and Cot- ton)	8.00	1.65	2.00
Upshur's Premo Cotton Guano.....	8.00	1.65	2.00
Upshur's Special Truck Guano	7.00	4.11	8.00
Upshur's F. F. (Farmer's Favorite).....	7.00	4.11	6.00
Upshur's 5 Per Cent Guano.....	7.00	4.11	5.00
Upshur's 6-4-4 Guano	6.00	3.29	4.00
Upshur's Norfolk Special 10 Per Cent.....	5.00	8.23	2.00
Upshur's 7 Per Cent Special Potato Guano...	5.00	5.76	5.00
Nitrate of Soda.....	....	15.65	....
Muriate of Potash.....	....	....	50.00
Sulphate of Potash.....	....	....	50.00
Genuine German Kainit.....	....	....	12.00

Venable Fertilizer Co., Richmond, Va.—

Pure Animal Bone.....Total	25.00	2.47	....
Pure Raw Bone.....Total	22.50	3.70	....
Venable Best Acid Phosphate.....	16.00	....	....
H. G. Acid Phosphate.....	14.00	....	....
Venable's Dissolved Bone	13.00	....	....
Venable's Standard Acid Phosphate.....	12.00	....	....
Venable's Corn, Wheat and Grass Fertilizer..	10.00	.82	1.00
High Grade Bone and Potash Mixture.....	10.00	....	4.00
Bone and Potash Mixture.....	10.00	....	2.00
Venable's Carolina Favorite	9.00	2.47	6.00
Venable's 3-9-3 Tobacco Fertilizer.....	9.00	2.47	3.00
Roanoke Mixture	9.00	2.26	2.00
Roanoke Meal Mixture	9.00	2.26	2.00
Venable's Majestic Guano	9.00	1.65	3.00
Venable's B. B. P. Manure.....	9.00	1.65	1.00
Venable's 5 Per Cent Trucker.....	8.00	4.11	5.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Venable's Sovereign Guano.....	8.00	3.29	4.00
Venable's 4 Per Cent Trucker.....	8.00	3.29	4.00
Venable's H. G. Tobacco Fertilizer.....	8.00	2.47	3.00
Farmers' Union H. G. Tobacco Guano.....	8.00	2.47	3.00
Ballard's Choice Fertilizer	8.00	2.47	3.00
Venable's H. G. Cotton Guano.....	8.00	2.47	3.00
Venable's Alliance Tobacco Manure, No. 1....	8.00	2.06	3.00
Venable's Cotton Grower	8.00	2.06	3.00
Venable's Roanoke Special	8.00	2.06	3.00
Venable's Ideal Manure	8.00	1.65	5.00
Our Union Tobacco Fertilizer.....	8.00	1.65	4.00
Farmers' Union Special Tobacco Fertilizer...	8.00	1.65	2.00
Venable's Meal Mixture	8.00	1.65	2.00
Venable's Alliance Tobacco Manure, No. 2....	8.00	1.65	2.00
Our Union Special Fertilizer.....	8.00	1.65	2.00
Planter's Bone Fertilizer	8.00	1.65	2.00
Venable's Peanut Special	8.00	.82	4.00
Venable's Alliance Bone and Potash Mixture.	8.00	....	4.00
Venable's Peanut Grower	8.00	....	4.00
Venable's 10 Per Cent Trucker.....	6.00	8.23	2.00
Venable's 6-6-6 Manure	6.00	4.94	6.00
Sulphate of Ammonia .....	....	19.75	....
Nitrate of Soda .....	....	15.63	....
Special Top Dresser .....	....	7.40	3.00
Muriate of Potash .....	....	....	50.00
Sulphate of Potash .....	....	....	48.00
High Grade German Potash.....	....	....	16.00
Pure German Kainit .....	....	....	12.00

Vance Guano Co., Henderson, N. C.—

Best Grade Acid Phosphate	16.00	....	....
Vance High Grade Acid Phosphate.....	14.00	....	....
Vance Corn and Grain Grower.....	10.00	.82	3.50
Bone and Potash Compound.....	10.00	....	2.00
Farmers' Union High Grade.....	9.00	2.47	3.00
Brodie's Best B. B.	8.00	3.29	4.00
Fish Brand Tobacco Manure.....	8.00	2.47	3.00
Sterling Cotton Grower.....	8.00	1.65	2.00
Hot Stuff	8.00	1.65	2.00

Virginia-Carolina Chemical Co., Richmond, Va.—

V.-C. C. Co.'s Floats	27.00	....	....
V.-C. C. Co.'s Concentrated Acid Phosphate ..	24.00	....	....
V.-C. C. Co.'s Pure Raw Bone.....Total	20.60	3.71	....
V.-C. C. Co.'s Johnson's Best	20.00	4.94	6.00
V.-C. C. Co.'s Concentrated Bone and Potash.	20.00	....	4.00
V.-C. C. Co.'s 17 Per Cent Acid Phosphate....	17.00	....	....
V.-C. C. Co.'s Concentrated Ammoniated	16.00	3.29	4.00
V.-C. C. Co.'s Alliance Acid Phosphate.....	16.00	....	....
V.-C. C. Co.'s Climax Potash Mixture.....	16.00	....	2.00
V.-C. C. Co.'s 16 Per Cent Acid Phosphate....	16.00	....	....
V.-C. C. Co.'s Sludge Acid Phosphate	14.00	....	....
V.-C. C. Co.'s 14 Per Cent Acid Phosphate....	14.00	....	....
V.-C. C. Co.'s Dissolved Animal Bone.....	13.00	2.06	....
V.-C. C. Co.'s 13 Per Cent Acid Phosphate....	13.00	....	....
V.-C. C. Co.'s Special High Grade Potash Mix- ture	12.00	....	6.00
V.-C. C. Co.'s H. G. Potash Mixture.....	12.00	....	5.00
V.-C. C. Co.'s Goodman's Special Potash Mix- ture	12.00	....	5.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
V.-C. C. Co.'s 12-4 Grain Grower	12.00	....	4.00
V.-C. C. Co.'s Wythe County Potash Mixture..	12.00	....	3.00
V.-C. C. Co.'s Special Crop Grower.....	12.00	....	3.00
V.-C. C. Co.'s Battle's Crop Grower.....	12.00	....	3.00
V.-C. C. Co.'s 12 Per Cent Acid Phosphate....	12.00	....	....
V.-C. C. Co.'s Home Comfort Acid Phosphate.	12.00	....	....
V.-C. C. Co.'s Virginia 11-5 Bone and Potash.	11.00	....	5.00
V.-C. C. Co.'s Electric H. G. Special	10.00	3.29	4.00
V.-C. C. Co.'s Ideal Crop Grower.....	10.00	2.47	3.00
V.-C. C. Co.'s Special Grain Mixture.....	10.00	1.65	5.00
V.-C. C. Co.'s Sovereign Crop Producer.....	10.00	1.65	2.00
V.-C. C. Co.'s Ford's Wheat and Corn Guano..	10.00	.82	2.50
V.-C. C. Co.'s Grain Special	10.00	....	6.00
V.-C. C. Co.'s Standard Bone and Potash.....	10.00	....	5.00
V.-C. C. Co.'s Crescent Potash Mixture.....	10.00	....	5.00
V.-C. C. Co.'s Special Potash Mixture.....	10.00	....	4.00
V.-C. C. Co.'s Dissolved Bone and Potash	10.00	....	2.00
V.-C. C. Co.'s Best's H. G. Tobacco Fertilizer.	9.00	2.47	7.00
V.-C. C. Co.'s Great Texas Cotton Grower Sol- uble Guano	9.00	2.47	4.00
V.-C. C. Co.'s 3-9-3 Tobacco Fertilizer.....	9.00	2.47	3.00
V.-C. C. Co.'s Jeffrey's High Grade Guano....	9.00	2.47	3.00
V.-C. C. Co.'s N. and R.'s Best	9.00	2.47	3.00
V.-C. C. Co.'s Westfield Special H. G. Tobacco Grower	9.00	2.47	3.00
V.-C. C. Co.'s Grey Soil Special H. G. Tobacco Grower	9.00	2.47	3.00
V.-C. C. Co.'s Powell's Special H. G. C. S. M..	9.00	2.26	3.00
V.-C. C. Co.'s Southern Cotton Grower C. S. M.	9.00	2.26	2.00
V.-C. C. Co.'s Vececo Cotton Grower C. S. M..	9.00	2.26	2.00
V.-C. C. Co.'s Cotton Grower.....	9.00	2.26	2.00
V.-C. C. Co.'s Best's Special Cotton Grower..	9.00	2.26	2.00
V.-C. C. Co.'s Prolific Cotton Grower C. S. M.	9.00	2.26	2.00
V.-C. C. Co.'s White Stem C. S. M.	9.00	2.26	2.00
V.-C. C. Co.'s Standard Cotton Grower C. S. M.	9.00	2.26	2.00
V.-C. C. Co.'s Bumper Crop Grower.....	9.00	2.06	5.00
V.-C. C. Co.'s Cuban Special Mixture.....	9.00	1.85	4.00
V.-C. C. Co.'s Cock's Soluble Guano H. G. Am- moniated Bone	9.00	1.85	3.00
V.-C. C. Co.'s No. 923.....	9.00	1.65	3.00
V.-C. C. Co.'s Reliable Cotton Brand Fertilizer	9.00	1.65	3.00
V.-C. C. Co.'s North State Guano C. S. M.	9.00	1.65	1.00
V.-C. C. Co.'s Grain Mixture.....	9.00	1.03	2.00
V.-C. C. Co.'s Tiger Brand.....	9.00	1.00	3.00
V.-C. C. Co.'s Bigelow's Crop Guano.....	9.00	.82	3.00
V.-C. C. Co.'s Burnhardt's Grain and Crop Guano	9.00	.82	3.00
V.-C. C. Co.'s McCormick's Wheat and Grain Guano	9.00	.82	3.00
V.-C. C. Co.'s Farmer's Friend Favorite Fertil- izer Special	8.50	1.65	2.00
V.-C. C. Co.'s Powhatan Crop Mixture	8.50	1.65	1.50
V.-C. C. Co.'s Pelican Peruvian Guano (Peli- can Truck Grower and Top Dresser).....	8.00	4.12	5.00
V.-C. C. Co.'s Muse's Special.....	8.00	3.70	7.00
V.-C. C. Co.'s Enterprise High Grade	8.00	3.29	11.00
V.-C. C. Co.'s Long Leaf Tobacco Grower....	8.00	3.29	5.00
V.-C. C. Co.'s Old Dominion Special Mixture * for Tobacco	8.00	3.29	4.00
V.-C. C. Co.'s Alliance H. G. Manure	8.00	3.29	4.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
V.-C. C. Co.'s Fish and Meal Mixture	8.00	3.29	4.00
V.-C. C. Co.'s Carr's Crop Grower, Best for All Crops	8.00	3.29	4.00
V.-C. C. Co.'s Farmers' Choice.....	8.00	3.29	4.00
V.-C. C. Co.'s John F. Croom & Bro. Fish and Meal Mixture	8.00	3.29	4.00
V.-C. C. Co.'s Special	8.00	3.29	4.00
V.-C. C. Co.'s Nowell & Richardson's Special.	8.00	3.29	4.00
V.-C. C. Co.'s Croom's Crop Grower.....	8.00	3.29	4.00
V.-C. C. Co.'s High Grade Tobacco Fertilizer.	8.00	2.47	10.00
V.-C. C. Co.'s Special Mixture	8.00	2.47	6.00
V.-C. C. Co.'s Excelsior H. G. Special.....	8.00	2.47	5.00
V.-C. C. Co.'s Lion's High Grade Tobacco Fer- tilizer	8.00	2.47	4.00
V.-C. C. Co.'s Farmers' Success	8.00	2.47	4.00
V.-C. C. Co.'s Myatt's Special H. G. Fertilizer.	8.00	2.47	3.00
V.-C. C. Co.'s Alliance Special Fertilizer.....	8.00	2.47	3.00
V.-C. C. Co.'s Croom's Special Cotton Ferti- lizer	8.00	2.47	3.00
V.-C. C. Co.'s Menhaden Fish and Meal Mix- ture	8.00	2.47	3.00
V.-C. C. Co.'s Best's H. G. Cotton and Tobacco Guano	8.00	2.47	3.00
V.-C. C. Co.'s Diamond C. S. M.	8.00	2.47	3.00
V.-C. C. Co.'s Jumbo Peruvian Guano, Jumbo Crop Grower	8.00	2.47	3.00
V.-C. C. Co.'s Oldham's Special Compound for Tobacco, High Grade	8.00	2.47	3.00
V.-C. C. Co.'s Blake's Best.....	8.00	2.47	3.00
V.-C. C. Co.'s Royal High Grade Fertilizer...	8.00	2.47	3.00
V.-C. C. Co.'s Special High Grade Tobacco Fer- tilizer	8.00	2.47	3.00
V.-C. C. Co.'s Adams' Special.....	8.00	2.47	3.00
V.-C. C. Co.'s Peruvian H. G. Tobacco Guano.	8.00	2.47	3.00
V.-C. C. Co.'s Red Cliff H. G. Cotton Grower..	8.00	2.47	3.00
V.-C. C. Co.'s Zeno Special Compound for To- bacco H. G.	8.00	2.47	3.00
V.-C. C. Co.'s Gold Medal H. G. Tobacco Guano	8.00	2.47	3.00
V.-C. C. Co.'s 3-S-3 Tobacco Fertilizer.....	8.00	2.47	3.00
V.-C. C. Co.'s Atlas Guano C. S. M.	8.00	2.47	2.50
V.-C. C. Co.'s Admiral C. S. M.....	8.00	2.47	2.50
V.-C. C. Co.'s Good Luck C. S. M.	8.00	2.47	2.50
V.-C. C. Co.'s Split Silk C. S. M.	8.00	2.47	2.50
V.-C. C. Co.'s 3 Per Cent Special C. S. M. Guano, No. 3	8.00	2.47	2.00
V.-C. C. Co.'s Orange Grove Guano	8.00	2.26	2.50
V.-C. C. Co.'s Delta C. S. M.	8.00	2.26	2.50
V.-C. C. Co.'s Royal Crown.....	8.00	2.26	2.00
V.-C. C. Co.'s Superlative C. S. M. Guano	8.00	2.06	3.00
V.-C. C. Co.'s Blue Star C. S. M.	8.00	2.06	3.00
V.-C. C. Co.'s Potato and Cabbage Special....	8.00	1.65	10.00
V.-C. C. Co.'s Smith's Irish Potato Guano....	8.00	1.65	10.00
V.-C. C. Co.'s Pace's 5 Per Cent Special Po- tato Guano	8.00	1.65	5.00
V.-C. C. Co.'s Boon's Favorite	8.00	1.65	5.00
V.-C. C. Co.'s Monarch Brand	8.00	1.65	5.00
V.-C. C. Co.'s Virginia Bone Special.....	8.00	1.65	5.00
V.-C. C. Co.'s Valley Pride	8.00	1.65	4.00
V.-C. C. Co.'s Corn and Peanut Special.....	8.00	1.65	4.00
V.-C. C. Co.'s Maultsby's Fish Guano.....	8.00	1.65	3.00
V.-C. C. Co.'s Alliance Grain Fertilizer.....	8.00	1.65	2.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
V.-C. C. Co.'s Winston Special for Cotton.....	8.00	1.65	2.00
V.-C. C. Co.'s Diamond Dust C. S. M.	8.00	1.65	2.00
V.-C. C. Co.'s Plant Food C. S. M.	8.00	1.65	2.00
V.-C. C. Co.'s Wilson's Standard C. S. M.	8.00	1.65	2.00
V.-C. C. Co.'s Ajax C. S. M. Guano.....	8.00	1.65	2.00
V.-C. C. Co.'s Farmers' Favorite Fertilizer C. S. M.	8.00	1.65	2.00
V.-C. C. Co.'s Monarch Wheat and Grass Grower	8.00	1.00	7.00
V.-C. C. Co.'s Special Peanut Grower.....	8.00	1.00	4.00
V.-C. C. Co.'s Electric Grain and Grass Grower	8.00	1.00	4.00
V.-C. C. Co.'s Peerless Corn, Wheat and Grass Grower	8.00	1.00	4.00
V.-C. C. Co.'s Peanut Grower.....	8.00	.82	4.00
V.-C. C. Co.'s The Harvester	8.00	.82	3.00
V.-C. C. Co.'s Pinnacle Grain Grower	8.00	.82	3.00
V.-C. C. Co.'s S-5 Potash Mixture.....	8.00	....	5.00
V.-C. C. Co.'s Potash Mixture for Peanuts....	8.00	....	4.00
V.-C. C. Co.'s Jones' Grain Special.....	8.00	....	4.00
V.-C. C. Co.'s Special Wheat Compound	8.00	....	4.00
V.-C. C. Co.'s Truck Crop Fertilizer.....	7.00	4.12	7.00
V.-C. C. Co.'s Konqueror H. G. Truck Fer- tilizer	7.00	4.12	5.00
V.-C. C. Co.'s Pasquotank Trucker.....	7.00	3.29	8.00
V.-C. C. Co.'s Potash Potato Producer.....	7.00	3.29	8.00
V.-C. C. Co.'s Formula 44 for Bright Wrappers and Smokers	7.00	2.55	3.20
V.-C. C. Co.'s Plant Bed and High Grade.....	7.00	2.26	6.00
V.-C. C. Co.'s Invincible High Grade Fertilizer.	6.00	4.12	7.00
V.-C. C. Co.'s Kitty Hawk Truck Fertilizer...	6.00	4.12	7.00
V.-C. C. Co.'s Special Truck Guano.....	6.00	4.12	7.00
V.-C. C. Co.'s Money Maker for Cabbage and Potatoes	6.00	1.65	10.00
V.-C. C. Co.'s 10 Per Cent Top Dresser Extra H. G.	4.00	8.24	4.00
V.-C. C. Co.'s Dewberry Special.....	4.00	6.59	....
V.-C. C. Co.'s Dewberry Special Extra H. G. ..	4.00	6.56	4.00
V.-C. C. Co.'s High Grade Top Dresser.....	4.00	6.17	2.50
V.-C. C. Co.'s Fish Scrap.....	4.00	8.24	....
V.-C. C. Co.'s Sulphate of Ammonia.....	....	20.59	....
V.-C. C. Co.'s Nitrate of Soda.....	....	14.82	....
V.-C. C. Co.'s Blood .....	....	13.18	....
V.-C. C. Co.'s Special Top Dresser .....	....	7.41	3.00
V.-C. C. Co.'s Muriate of Potash.....	....	....	48.00
V.-C. C. Co.'s Sulphate of Potash.....	....	....	48.00
V.-C. C. Co.'s Manure Salts.....	....	....	20.00
V.-C. C. Co.'s Kainit .....	....	....	12.00
Allison & Addison's Fulton Acid Phosphate..	14.00	....	....
Allison & Addison's I. X. L. Acid Phosphate..	13.00	....	....
Allison & Addison's Standard Acid Phosphate.	12.00	....	....
Allison & Addison's Rockets Acid Phosphate..	12.00	....	....
Allison & Addison's McGavock's Special Pot- ash Mixture	10.00	....	2.00
Allison & Addison's B. P. Potash Mixture....	10.00	....	2.00
Allison & Addison's Star Special Tobacco Ma- nure	9.00	2.26	2.00
Allison & Addison's Star Brand Guano.....	9.00	1.65	1.00
Allison & Addison's Little Giant Grain and Grass Grower	9.00	1.00	2.00
Allison & Addison's Anchor Brand Tobacco Fertilizer	8.50	2.26	2.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Allison & Addison's Star Brand Vegetable Guano	8.00	3.70	4.00
Allison & Addison's A. A. Guano.....	8.00	2.47	3.00
Allison & Addison's Anchor Brand Fertilizer.	8.00	1.65	2.00
Allison & Addison's Old Hickory Guano.....	8.00	1.65	2.00
Allison & Addison's Peanut Grower.....	8.00	1.00	4.00
Atlantic and Virginia Fertilizer Co.'s Eureka Acid Phosphate	16.00	....	....
Atlantic and Virginia Fertilizer Co.'s Valley of Virginia Phosphate	14.00	....	....
Atlantic and Virginia Fertilizer Co.'s Crenshaw Acid Phosphate	13.00	....	....
Atlantic and Virginia Fertilizer Co.'s Our Acid Phosphate	12.00	....	....
Atlantic and Virginia Fertilizer Co.'s Eureka Bone and Potash Compound.....	10.00	....	2.00
Atlantic and Virginia Fertilizer Co.'s Eureka Ammoniated Bone Special for Tobacco.....	9.00	2.06	2.00
Atlantic and Virginia Fertilizer Co.'s Orient Complete Manure	9.00	1.65	2.00
Atlantic and Virginia Fertilizer Co.'s Virginia Truckers	8.00	4.12	5.00
Atlantic and Virginia Fertilizer Co.'s Eureka Ammoniated Bone	8.00	1.65	2.00
Atlantic and Virginia Fertilizer Co.'s Orient Special for Tobacco	8.00	1.65	2.00
Atlantic and Virginia Fertilizer Co.'s Peanut Grower	8.00	1.00	4.00
Atlantic and Virginia Fertilizer Co.'s Carolina Trucker	7.00	5.76	7.00
Charlotte Oil and Fertilizer Co.'s 15 Per Cent Acid Phosphate	15.00	....	....
Charlotte Oil and Fertilizer Co.'s Catawba Acid Phosphate	14.00	....	....
Charlotte Oil and Fertilizer Co.'s Acid Phosphate	13.00	....	....
Charlotte Oil and Fertilizer Co.'s Dayvault's Special	12.00	....	6.00
Charlotte Oil and Fertilizer Co.'s Dissolved Bone	12.00	....	....
Charlotte Oil and Fertilizer Co.'s Oliver's Perfect Wheat Grower	11.00	2.47	4.00
Charlotte Oil and Fertilizer Co.'s 10-2 Bone and Potash	10.00	....	2.00
Charlotte Oil and Fertilizer Co.'s High Grade Special Tobacco Fertilizer	9.00	2.06	2.00
Charlotte Oil and Fertilizer Co.'s Queen of the Harvest C. S. M.	9.00	1.65	2.00
Charlotte Oil and Fertilizer Co.'s McCrary's Diamond Bone and Potash.....	9.00	....	3.00
Charlotte Oil and Fertilizer Co.'s Groom's Special Tobacco Fertilizer	8.00	2.47	4.00
Charlotte Oil and Fertilizer Co.'s Catawba Guano B. G.	8.00	2.47	3.00
Charlotte Oil and Fertilizer Co.'s Special 3 Per Cent Guano C. S. M.	8.00	2.47	2.00
Charlotte Oil and Fertilizer Co.'s Ammoniated Guano B. G.	8.00	2.06	1.50
Charlotte Oil and Fertilizer Co.'s Ammoniated Guano C. S. M.	8.00	2.06	1.50

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Charlotte Oil and Fertilizer Co.'s The Leader B. G.	8.00	1.65	2.00
Charlotte Oil and Fertilizer Co.'s King Cotton Grower	8.00	1.65	2.00
Davie & Whittle's Owl Brand High Grade Acid Phosphate	16.00	....	....
Davie & Whittle's Owl Brand High Grade Dissolved Bone	14.00	....	....
Davie & Whittle's Owl Brand Acid Phosphate.	13.00	....	....
Davie & Whittle's Owl Brand Dissolved Bone.	12.00	....	....
Davie & Whittle's Owl Brand Acid Phosphate with Potash	10.00	....	2.00
Davie & Whittle's Owl Brand Truck Guano..	9.00	2.26	2.00
Davie & Whittle's Owl Brand High Grade 3 Per Cent Soluble Guano.....	9.00	2.06	3.00
Davie & Whittle's Owl Brand Special Tobacco Guano	9.00	2.06	2.00
Davie & Whittle's Owl Brand Truck Guano..	8.00	4.94	5.00
Davie & Whittle's Owl Brand Guano for To- bacco	8.00	2.47	3.00
Davie & Whittle's Vinco Guano	8.00	1.65	3.00
Davie & Whittle's Owl Brand Guano.....	8.00	1.65	2.00
Davie & Whittle's Peanut Grower.....	8.00	1.00	4.00
Durham Fertilizer Co.'s Best Acid Phosphate.	16.00	....	....
Durham Fertilizer Co.'s Standard High Grade Acid Phosphate	14.00	....	....
Durham Fertilizer Co.'s Excelsior Dissolved Bone Phosphate	14.00	....	....
Durham Fertilizer Co.'s Blacksburg Dissolved Bone	13.00	....	....
Durham Fertilizer Co.'s N. C. Farmers' Alli- ance Official Acid Phosphate.....	13.00	....	....
Durham Fertilizer Co.'s Double Bone Phos- phate	13.00	....	....
Durham Fertilizer Co.'s Acid Phosphate.....	12.00	....	....
Durham Fertilizer Co.'s Great Wheat and Corn Grower	10.50	....	1.50
Durham Fertilizer Co.'s Diamond Wheat Mix- ture	10.00	....	3.00
Durham Fertilizer Co.'s Standard Wheat and Corn Grower	10.00	....	2.00
Durham Fertilizer Co.'s Blue Ridge Wheat Grower	10.00	....	2.00
Durham Fertilizer Co.'s Standard Wheat Grower	10.00	....	2.00
Durham Fertilizer Co.'s Bone and Potash Mix- ture	10.00	....	2.00
Durham Fertilizer Co.'s L. & M. Special.....	9.00	2.47	2.00
Durham Fertilizer Co.'s Standard Guano....	9.00	1.65	2.00
Durham Fertilizer Co.'s Ammoniated Ferti- lizer	9.00	1.65	1.00
Durham Fertilizer Co.'s Special Plant and Truck Fertilizer	8.00	4.12	3.00
Durham Fertilizer Co.'s Durham High Grade.	8.00	3.29	4.00
Durham Fertilizer Co.'s Gold Medal Brand Guano	8.00	2.47	3.00
Durham Fertilizer Co.'s Yellow Leaf Tobacco Guano	8.00	2.47	3.00
Durham Fertilizer Co.'s N. C. Farmers' Alli- ance Official Guano	8.00	2.06	3.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Durham Fertilizer Co.'s Pride of Durham Tobacco Grower	8.00	2.06	3.00
Durham Fertilizer Co.'s Raw Bone Superphosphate for Tobacco	8.00	2.06	2.00
Durham Fertilizer Co.'s Raw Bone Superphosphate	8.00	2.06	1.50
Durham Fertilizer Co.'s Genuine Bone and Peruvian Guano	8.00	1.65	2.00
Durham Fertilizer Co.'s Genuine Bone and Peruvian Guano for Tobacco.....	8.00	1.65	2.00
Durham Fertilizer Co.'s Blacksburg Soluble Guano	8.00	1.65	2.00
Durham Fertilizer Co.'s Progressive Farmer Guano	8.00	1.65	2.00
Durham Fertilizer Co.'s Peanut Grower.....	8.00	1.00	4.00
Durham Fertilizer Co.'s Carr's Special Wheat Grower	8.00	....	4.00
Durham Fertilizer Co.'s Best Potato Manure.	7.00	5.76	7.00
Lynchburg Guano Co.'s Ironside Acid Phosphate	16.00	....	....
Lynchburg Guano Co.'s Lynchburg High Grade Acid Phosphate	14.00	....	....
Lynchburg Guano Co.'s Arvonja Acid Phosphate	13.00	....	....
Lynchburg Guano Co.'s Spartan Acid Phosphate	12.00	....	....
Lynchburg Guano Co.'s Alpine Mixture.....	10.00	....	5.00
Lynchburg Guano Co.'s S. W. Special Bone and Potash Mixture	10.00	....	4.00
Lynchburg Guano Co.'s Dissolved Bone and Potash	10.00	....	2.00
Lynchburg Guano Co.'s Independent Standard.	8.50	1.65	2.00
Lynchburg Guano Co.'s Bright Belt Guano...	8.00	2.47	3.00
Lynchburg Guano Co.'s Solid Gold Tobacco Guano	8.00	2.26	4.00
Lynchburg Guano Co.'s New Era.....	8.00	1.65	3.00
Lynchburg Guano Co.'s Lynchburg Soluble...	8.00	1.65	2.00
Lynchburg Guano Co.'s Lynchburg Soluble for Tobacco	8.00	1.65	2.00
Norfolk and Carolina Chemical Co.'s Norfolk Reliable Acid Phosphate	14.00	....	....
Norfolk and Carolina Chemical Co.'s Norfolk Best Acid Phosphate	13.00	....	....
Norfolk and Carolina Chemical Co.'s Norfolk Soluble Bone	12.00	....	....
Norfolk and Carolina Chemical Co.'s Norfolk Bone and Potash	10.00	....	2.00
Norfolk and Carolina Chemical Co.'s Norfolk Truck and Tomato Grower.....	8.00	4.12	5.00
Norfolk and Carolina Chemical Co.'s Amazon High Grade Manure	8.00	2.47	3.00
Norfolk and Carolina Chemical Co.'s Bright Leaf Tobacco Grower	8.00	2.47	3.00
Norfolk and Carolina Chemical Co.'s Amazon H. G. Special Tobacco Guano.....	8.00	2.47	3.00
Norfolk and Carolina Chemical Co.'s Cooper's Bright Tobacco Fertilizer	8.00	2.06	3.00
Norfolk and Carolina Chemical Co.'s Genuine Slaughter House Bone Made Expressly for Tobacco	8.00	2.06	2.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Norfolk and Carolina Chemical Co.'s Crescent Brand Ammoniated Fertilizer	8.00	1.65	2.00
Norfolk and Carolina Chemical Co.'s Genuine Slaughter House Bone Guano.....	8.00	1.65	2.00
Norfolk and Carolina Chemical Co.'s Peanut Grower	8.00	1.00	4.00
Old Dominion Guano Co.'s High Grade Acid Phosphate	14.00	....	....
Old Dominion Guano Co.'s Bone Phosphate...	13.00	....	....
Old Dominion Guano Co.'s Royster's Acid Phosphate	12.00	....	....
Old Dominion Guano Co.'s Obelisk Brand Bone and Potash	10.00	....	4.00
Old Dominion Guano Co.'s Planter's Bone and Potash Mixture	10.00	....	3.00
Old Dominion Guano Co.'s Alkaline Bone and Potash	10.00	....	2.00
Old Dominion Guano Co.'s Horne's Cotton Fertilizer	9.00	2.06	3.00
Old Dominion Guano Co.'s Standard Raw Bone Soluble Guano	9.00	1.65	1.00
Old Dominion Guano Co.'s Farmers' Friend High Grade Fertilizer	8.00	2.47	3.00
Old Dominion Guano Co.'s Farmers' Soluble Bone High Grade Special Tobacco Manure.	8.00	2.47	3.00
Old Dominion Guano Co.'s Farmers' Friend Special Tobacco Fertilizer	8.00	2.47	3.00
Old Dominion Guano Co.'s Osceola Tobacco Guano	8.00	2.06	3.00
Old Dominion Guano Co.'s Farmers' Friend Fertilizer	8.00	1.65	2.00
Old Dominion Guano Co.'s Old Dominion Special Wheat Guano	8.00	1.65	2.00
Old Dominion Guano Co.'s Old Dominion Soluble Tobacco Guano	8.00	1.65	2.00
Old Dominion Guano Co.'s Bullock's Cotton Guano	8.00	1.65	2.00
Old Dominion Guano Co.'s Soluble Guano...	8.00	1.65	2.00
Old Dominion Guano Co.'s Peanut Grower...	8.00	1.00	4.00
Old Dominion Guano Co.'s Miller's Special Wheat Mixture	8.00	....	4.00
Old Dominion Guano Co.'s 7-7-7 Truck Guano.	7.00	5.76	7.00
Old Dominion Guano Co.'s Potato Manure...	7.00	4.12	8.00
Old Dominion Guano Co.'s 7 Per Cent Truck Fertilizer	6.00	5.76	6.00
Old Dominion Guano Co.'s 6-7-5 Truck Guano.	6.00	5.76	5.00
Old Dominion Guano Co.'s Special Sweet Potato Guano	6.00	1.65	6.00
Old Dominion Guano Co.'s 10 Per Cent Truck Fertilizer	5.00	8.24	2.50
Powers, Gibbs & Co.'s Almont High Grade Acid Phosphate	14.00	....	....
Powers, Gibbs & Co.'s Fulp's Acid Phosphate.	13.00	....	....
Powers, Gibbs & Co.'s Cotton Brand Best Acid Phosphate	13.00	....	....
Powers, Gibbs & Co.'s Almont Acid Phosphate.	12.00	....	....
Powers, Gibbs & Co.'s Cotton Brand Acid Phosphate	12.00	....	....
Powers, Gibbs & Co.'s Almont Acid Phosphate and Potash	10.50	....	1.50

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Powers, Gibbs & Co.'s Almont Wheat Mixture.	10.00	....	3.00
Powers, Gibbs & Co.'s Dissolved Bone and Potash	10.00	....	2.00
Powers, Gibbs & Co.'s Cotton-seed Meal Stand-ard Guano	9.00	2.47	2.00
Powers, Gibbs & Co.'s Truck Farmers' Special Ammoniated Guano	8.00	3.29	5.00
Powers, Gibbs & Co.'s Cotton Brand Ammoni-ated Dissolved Bone	8.00	3.29	4.00
Powers, Gibbs & Co.'s Old Kentucky High Grade Tobacco Manure	8.00	2.47	3.00
Powers, Gibbs & Co.'s Cotton Belt Ammoniated Guano	8.00	2.47	2.00
Powers, Gibbs & Co.'s Carolina Golden Belt Ammoniated Guano for Tobacco.....	8.00	2.06	3.00
Powers, Gibbs & Co.'s Powers' Ammoniated Guano	8.00	2.06	2.00
Powers, Gibbs & Co.'s Gibbs' Ammoniated Guano	8.00	2.06	1.50
Powers, Gibbs & Co.'s Almont Soluble Am-moniated Guano	8.00	1.65	2.00
Powers, Gibbs & Co.'s Cotton-seed Meal Solu-ble Ammoniated Guano	8.00	1.65	2.00
Powers, Gibbs & Co.'s Eagle Island Ammoni-ated Guano	8.00	1.65	2.00
Powers, Gibbs & Co.'s Peanut Grower.....	8.00	1.00	4.00
Southern Chemical Co.'s Comet 16 Per Cent Acid Phosphate	16.00	....	....
Southern Chemical Co.'s Chick's 16 Per Cent Acid Phosphate	16.00	....	....
Southern Chemical Co.'s Red Cross 14 Per Cent Acid Phosphate	14.00	....	....
Southern Chemical Co.'s Victor Acid Phos-phate	13.00	....	....
Southern Chemical Co.'s Chatham Acid Phos-phate	13.00	....	....
Southern Chemical Co.'s Reaper Grain Appli-cation	12.00	....	3.00
Southern Chemical Co.'s Tar Heel Acid Phos-phate	12.00	....	....
Southern Chemical Co.'s Horseshoe Acid Phos-phate	12.00	....	....
Southern Chemical Co.'s Quickstep Bone and Potash	11.00	....	5.00
Southern Chemical Co.'s Solid South.....	10.00	....	6.00
Southern Chemical Co.'s Winner Grain Mix-ture	10.00	....	4.00
Southern Chemical Co.'s Farmers' Pride Bone and Potash	10.00	....	3.00
Southern Chemical Co.'s Winston Bone and Potash	10.00	....	2.00
Southern Chemical Co.'s Mammoth Corn Grower	10.00	....	2.00
Southern Chemical Co.'s Mammoth Wheat and Grass Grower	10.00	....	2.00
Southern Chemical Co.'s Sun Brand Guano...	9.00	2.06	5.00
Southern Chemical Co.'s George Washington Plant Bed Fertilizer for Tobacco.....	8.00	2.47	2.50
Southern Chemical Co.'s Pilot Ammoniated Guano Special for Tobacco.....	8.00	2.06	3.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Southern Chemical Co.'s Electric Tobacco			
Guano	8.00	1.65	2.00
Southern Chemical Co.'s Electric Standard			
Guano	8.00	1.65	2.00
Southern Chemical Co.'s Yadkin Complete Fer- tilizer	8.00	1.65	2.00
Southern Chemical Co.'s Chick's Special Wheat Compound	8.00	....	4.00
J. G. Tinsley & Co.'s Powhatan Acid Phos- phate	14.00	....	....
J. G. Tinsley & Co.'s Dissolved S. C. Bone....	13.00	....	....
J. G. Tinsley & Co.'s Stonewall Brand Acid Phosphate	12.00	....	....
J. G. Tinsley & Co.'s Bone and Potash Mixture	10.00	....	2.00
J. G. Tinsley & Co.'s Powhatan Tobacco Fer- tilizer	9.00	2.47	3.00
J. G. Tinsley & Co.'s Tobacco Fertilizer.....	8.00	3.29	2.50
J. G. Tinsley & Co.'s Richmond Brand Guano.	8.00	2.47	3.00
J. G. Tinsley & Co.'s Peruvian H. G. Tobacco Guano	8.00	2.47	3.00
J. G. Tinsley & Co.'s Killickinick Tobacco Mix- ture	8.00	2.06	3.00
J. G. Tinsley & Co.'s Appomattox Standard Tobacco Grower	8.00	1.65	2.00
J. G. Tinsley & Co.'s Lee Brand Guano.....	8.00	1.65	2.00
J. G. Tinsley & Co.'s Stonewall Guano.....	8.00	1.65	2.00
J. G. Tinsley & Co.'s Stonewall Tobacco Guano	8.00	1.65	2.00
J. G. Tinsley & Co.'s Peanut Grower.....	8.00	1.00	4.00
J. G. Tinsley & Co.'s Special Irish Potato Guano	6.00	5.76	6.00
J. G. Tinsley & Co.'s 7 Per Cent Ammoniated Guano for Truck and Strawberries.....	6.00	5.76	6.00
J. G. Tinsley & Co.'s Irish Potato Guano.....	6.00	4.94	6.00
J. G. Tinsley & Co.'s Strawberry Grower.....	6.00	3.29	4.00
J. G. Tinsley & Co.'s Top Dresser.....	5.00	9.06	....
J. G. Tinsley & Co.'s 10 Per Cent Truck Guano	5.00	8.24	2.50
S. W. Travers & Co.'s Champion Acid Phos- phate	16.00	....	....
S. W. Travers & Co.'s Dissolved Acid Phos- phate	14.00	....	....
S. W. Travers & Co.'s Standard Dissolved S. C. Bone	13.00	....	....
S. W. Travers & Co.'s Capital Dissolved Bone.	12.00	....	....
S. W. Travers & Co.'s Capital Bone and Pot- ash Compound	10.00	....	2.00
S. W. Travers & Co.'s National Tobacco Fer- tilizer	8.50	1.85	2.25
S. W. Travers & Co.'s Capital Truck Fer- tilizer	8.00	3.29	3.00
S. W. Travers & Co.'s Capital Tobacco Fer- tilizer	8.00	3.29	3.00
S. W. Travers & Co.'s Big Leaf Tobacco Grower	8.00	2.47	3.00
S. W. Travers & Co.'s Capital Cotton Fer- tilizer	8.00	2.06	2.00
S. W. Travers & Co.'s National Fertilizer....	8.00	1.65	2.00
S. W. Travers & Co.'s National Special To- bacco Fertilizer	8.00	1.65	2.00
S. W. Travers & Co.'s Beef, Blood and Bone Fertilizer	8.00	1.65	2.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
S. W. Travers & Co.'s Peanut Grower.....	8.00	1.00	4.00
S. W. Travers & Co.'s Special Wheat Com- pound	8.00	....	4.00
S. W. Travers & Co.'s 7 Per Cent Truck Fer- tilizer	6.00	5.76	5.00
Virginia State Fertilizer Co.'s Bull Run Acid Phosphate	16.00	....	....
Virginia State Fertilizer Co.'s Gilt Edge Brand Acid Phosphate	14.00	....	....
Virginia State Fertilizer Co.'s Clipper Brand Acid Phosphate	13.00	....	....
Virginia State Fertilizer Co.'s Lurich Acid Phosphate	12.00	....	....
Virginia State Fertilizer Co.'s Alps Brand Acid Phosphate	12.00	....	....
Virginia State Fertilizer Co.'s Mountain Top Bone and Potash.....	10.00	....	5.00
Virginia State Fertilizer Co.'s XX Potash Mix- ture	10.00	....	4.00
Virginia State Fertilizer Co.'s Dissolved Bone and Potash	10.00	....	2.00
Virginia State Fertilizer Co.'s Number One Soluble Bone	9.00	1.65	2.00
Virginia State Fertilizer Co.'s Highland King.	9.00	1.65	1.00
Virginia State Fertilizer Co.'s Gamecock Spe- cial for Tobacco.....	8.50	1.65	2.00
Virginia State Fertilizer Co.'s High Grade To- bacco Guano	8.00	2.47	3.00
Virginia State Fertilizer Co.'s Bull Dog Solu- ble Guano	8.00	2.47	3.00
Virginia State Fertilizer Co.'s Dunnington's Special Formula for Tobacco.....	8.00	2.47	3.00
Virginia State Fertilizer Co.'s Peerless To- bacco Guano	8.00	2.47	3.00
Virginia State Fertilizer Co.'s Buffalo Guano.	8.00	2.06	3.00
Virginia State Fertilizer Co.'s Austrian To- bacco Grower	8.00	2.06	2.00
Virginia State Fertilizer Co.'s Gilt Edge Spe- cial Tobacco Guano.....	8.00	2.06	2.00
Virginia State Fertilizer Co.'s Battle Axe To- bacco Guano	8.00	1.65	2.00
Virginia State Fertilizer Co.'s Virginia State Guano	8.00	1.65	2.00
Virginia State Fertilizer Co.'s Gilt Edge Brand Dissolved Bone and Potash.....	8.00	....	4.00
<i>Thomas Wakefield, Friendship, N. C.—</i>			
Pure Bone Meal.....Total	21.00	4.10	....
<i>Williams & Clark Fertilizer Co., Charleston, S. C.—</i>			
Standard Americus Ammoniated Bone Super- phosphate	9.00	1.85	1.00
<i>Winborne Guano Co., Norfolk, Va.—</i>			
High Grade Acid Phosphate.....	16.00	....	....
Standard Acid Phosphate.....	14.00	....	....
Best Bone and Potash.....	11.00	....	4.00
Soluble Bone and Potash.....	10.00	....	2.00
Big Triumph Guano.....	8.00	3.30	4.00
Farmers Select Guano.....	8.00	2.47	4.00

Name and Address of Manufacturer and Name of Brand.	Avall. Phos. Acid.	Nitrogen.	Potash.
Winborne's King Guano	8.00	2.47	3.00
Winborne's Special Tobacco Guano.....	8.00	2.47	3.00
Winborne's Crop Grower.....	8.00	1.65	2.00
Winborne's Excelsior Guano.....	8.00	1.65	2.00
Standard Eureka Guano.....	8.00	1.65	2.00
Climax Peanut Guano.....	8.00	.82	4.00
Premium Top Dresser.....	6.00	7.40	3.00
Special 5-6-7 Truck Guano.....	6.00	4.10	7.00
Winborne's Tip Top Tobacco Guano.....	6.00	3.30	5.00
Winborne's Sweet Potato Guano.....	6.00	2.47	6.00
Big Crop 7 Per Cent Guano.....	5.00	5.75	5.00
Nitrate of Soda.....	....	15.00	....
Winborne's Top Dresser.....	....	7.40	3.00
Muriate of Potash.....	....	....	50.00
Sulphate of Potash.....	....	....	48.00
Genuine German Kainit.....	....	....	12.00

T. W. Wood & Sons, Richmond, Va.—

Wood's Pure Animal Bone Meal.....Total	23.00	3.60	....
Ground Basic Slag.....Total	17.00	....	....
Standard H. G. Acid Phosphate.....	16.00	....	....
Standard High Grade Acid Phosphate.....	14.00	....	....
Standard Bone and Potash Mixture.....	10.00	....	2.00
Standard Corn Fertilizer.....	9.00	1.23	1.00
Standard Wheat Fertilizer.....	9.00	1.23	1.00
Standard High Grade Truck Fertilizer.....	8.00	4.93	6.00
Standard Market Grower Fertilizer.....	8.00	3.29	4.00
Standard Vegetable Fertilizer.....	8.00	2.47	3.00
Standard Potato Fertilizer.....	8.00	1.65	5.00
Standard Grain and Grass Fertilizer.....	8.00	1.65	2.00
Standard Crop Grower Fertilizer.....	8.00	1.03	2.00
Wood's Lawn Enricher.....	6.00	2.47	3.00
Nitrate of Soda.....	....	15.63	....
Muriate of Potash.....	....	....	50.00
Sulphate of Potash.....			48.00
Kainit			12.00

Wessell, Duval & Co., N. Y. and Wilmington—

Nitrate of Soda.....		14.85	
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Wilson Chemical Co., Wilson, N. C.—

16 Per Cent Acid Phosphate.....	16.00		
14 Per Cent Acid Phosphate.....	14.00		
Bone and Potash Mixture No. 3.....	10.00	....	5.00
Bone and Potash Mixture No. 2.....	10.00	....	4.00
Bone and Potash Mixture No. 1.....	10.00	....	2.00
8-4.50-8 for Tobacco.....	8.00	3.70	7.00
8-4.50-7 for Cotton.....	8.00	3.70	7.00
Wilson Chemical Co.'s Gold Medal Cotton Fertilizer	8.00	3.30	4.00
Wilson Chemical Co.'s Gold Medal Tobacco Fertilizer	8.00	3.30	4.00
Planters Formula No. 1 for Fine Tobacco....	8.00	2.47	10.00
Planters Formula No. 2 for Fine Tobacco....	8.00	2.47	7.00
East Carolina Cotton Grower.....	8.00	2.47	3.00
East Carolina Tobacco Grower.....	8.00	2.47	3.00
Cotton States Standard.....	8.00	2.00	2.00
Nitrate of Soda.....	....	14.82	....
Muriate of Potash.....	....	....	50.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Sulphate of Potash.....			50.00
H. G. 16 Per Cent Kainit.....			16.00
Genuine German Kainit.....			12.00

The J. R. Young Fertilizer Co., Norfolk, Va.—

High Grade 16 Per Cent Acid Phosphate.....	16.00	....	....
14 Per Cent Acid Phosphate.....	14.00	....	....
Special Bone and Potash Compound.....	10.00	....	4.00
Bone and Potash Mixture.....	10.00	....	2.00
J. R. Young's 2 $\frac{3}{4}$ -9-2 Guano.....	9.00	2.26	2.00
J. R. Young's Corn Grower.....	9.00	.82	2.00
J. R. Young's 4-8-4 Crop Grower.....	8.00	3.29	4.00
J. R. Young's 3-8-3 Guano for Cotton.....	8.00	2.47	3.00
J. R. Young's New Process 3-8-3 Guano for Tobacco	8.00	2.47	3.00
J. R. Young's New Process 2-8-2 Guano for Cotton, Corn and Peanuts.....	8.00	1.65	2.00
J. R. Young's Special 2-8-2 Guano.....	8.00	1.65	2.00
Pasquotank 5-6-7 Potato Grower.....	6.00	4.11	7.00
J. R. Young's Special Guano for Potatoes....	6.00	4.11	5.00
J. R. Young's Improved Fish and Bone Ma- nure	6.00	3.29	4.00
J. R. Young's 3-6-6 Special Guano for S. P....	6.00	2.47	6.00
J. R. Young's New Process Guano for Truck..	5.00	5.67	3.50
J. R. Young's 4-4-6 Special for Tobacco.....	4.00	3.29	6.00
Nitrate of Soda.....	....	14.84	....
Muriate of Potash.....	....	....	49.00
Sulphate of Potash.....	....	....	48.00
J. R. Young's German Kainit.....	....	....	12.90

LEAF TOBACCO SALES FOR DECEMBER, 1912.

Pounds sold for producers, first hand.....	17,349,308
Pounds sold for dealers.....	618,297
Pounds resold for warehouses.....	1,019,849
Total.....	18,987,454

THE BULLETIN
OF THE
NORTH CAROLINA
DEPARTMENT OF AGRICULTURE
RALEIGH

Volume 34--No. 2.

FEBRUARY, 1913.

Whole No. 180

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BOTANICAL
GARDEN

VARIETY TESTS OF CORN

SENT FREE TO CITIZENS ON APPLICATION.

Entered at the Postoffice at Raleigh, N. C., as second class matter,
Februars 7, 1901, ander act of June 6, 1900.

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*Assigned by the Bureau of Soils, United States Department of Agriculture.

†Assigned by the Bureau of Plant Industry, United States Department of Agriculture.

LETTER OF TRANSMITTAL.

February 1, 1913.

HON. W. A. GRAHAM,
Commissioner of Agriculture.

SIR:—I have the honor to submit herewith a manuscript, covering the corn variety test work of the Cereal Section of the Agronomy Division during 1912, and respectfully recommend its publication as the February Bulletin of this Department.

J. L. BURGESS,
Agronomist.

Approved for publication:
W. A. GRAHAM, *Commissioner.*

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WHAT AN ACRE OF CORN MAY YIELD.

With rows four feet apart, and corn planted eighteen inches apart in the row with one stalk in the hill, an acre of corn will contain 7228 stalks. With each stalk bearing one ear, there will be produced 7228 ears of corn per acre. If but one ear per stalk is grown that ear should not weigh less than twelve and one-half ounces, thus giving the farmer 90,350 ounces of ear corn. There are 1,120 ounces in one bushel of ear corn. Therefore, if we divide 90,350 by 1,120 we will get about 80.6 bushels as the amount of shelled corn that may be grown on an acre of ground under ideal conditions with a one-ear variety of corn.

Should the farmer grow two 12.5 ounce ears per stalk his yield will, of course be doubled. Again should he reduce the distance between hills to nine inches and also grow two 12.5 ounce ears per stalk, he will multiply his original yield by four, or produce over three hundred and twenty bushels per acre.

Of course this is far above the highest limit yet reached, or, indeed, is ever likely to be reached, but a yield of over two hundred and thirty bushels per acre has already been produced and the contest is still on.

The important point to be noted in this connection is that the eighty bushel yield cannot be made unless the stand is practically perfect. Therefore, the factors which operate in producing the perfect stand must receive the most careful consideration. First among these is the

SELECTION AND PREPARATION OF SEED.

A task well begun is half done. Obviously, the most important part in beginning the task of growing a corn crop is the selection of good seed. Now, there are two kinds of good seed. There is a good variety seed and a good vitality seed. It is needless to say that however good may be the variety we select, our crop will be a failure if the vitality of the seed we plant is not strong enough to give us a good stand. It is, therefore, more important for us to have good viable seed for planting than to have a good variety to plant, in case we cannot get both qualities in the same sample.

Did you ever select your seed corn from the crib in the spring? Yes. Then it is safe to assume that you picked out the finest looking ears you could find. I suppose most of us would do that. But how many ears like the ones you chose for seed were borne on a single stalk—two, three, or four? The chances are that in ninety-nine cases out of a hundred, not more than one such ear as you chose for seed was borne on a single stalk last year. Why? Because the high yielding, prolific corn-stalks do not bear big, showy ears. The ears produced by these plants and these varieties are generally medium to small. By thus selecting your seed in the crib you accelerate the tendency of your corn to grow one ear to the stalk, and thus reduce the yield per acre.

No corn grower should think of making crib selections of seed for planting. In the fall, when the husks are turning brown on the ears, the farmer should search his fields for such plants as he would be glad to grow the following season. He will not find a great many such

plants, but he will find a few, and these he should select and carefully tag for seed. The stalks must not be cut or have the fodder pulled from them at all. Let the stalks dry up and the ears cure out thoroughly before taking them in from the field.

BREEDING PLAT.

Select enough of these ideal plants for the crop next season and reserve a number of the best of these carefully selected ears for the breeding plat.

The breeding plat should be on land similar in all respects to the land on which the general crop is to be planted. In this plat plant some fifty or one hundred rows of fifty to one hundred hills each from the best ears selected in the field from the general crop, and fertilize and cultivate just as you would the rest of the corn crop.

It is a well established fact that seed corn that has been crossed makes a better yield and a better quality of corn than seed that has been inbred. You must, therefore, select from this breeding plat only such ears as have been rigidly crossed.

In order to insure rigid crossing in the seed patch you have only to resort to the simple operation of detasseling every other row or every other hill, leaving tassels in the two outside rows.

Do not pull the fodder from the breeding plat, but let the stalks dry up and the ears remain in the field until they have dried out thoroughly. Now go into the breeding plat and select your seed corn for the next crop. Take only the best ears from the best stalks. It would be well, however, to make a careful examination of the plat before the stalks dry up, in order to note any tendency to disease among the stalks. Those stalks showing susceptibility to any of the common diseases of corn should either be cut out at once or so marked that ears will not be taken from them for seed at gathering time. Be sure that every ear selected for seed the following year is taken from a detasseled stalk. Not a single ear, no matter how beautiful it may be, should be taken from a stalk in which the tassel has been allowed to grow.

Enough corn should be selected from this breeding plat to plant the general crop, but the very best ears in the plat should be kept for the breeding plat the following year. Always plant the very best selection in the breeding plat and save the rest for the general crop. You will thus gradually increase the general strength and vigor of your whole crop by concentrating your efforts on a small area from year to year with a view to increasing the vitality and prolificacy of the strain.

PRESERVATION OF SEED.

Having thus carefully selected your seed corn, the next step is to give it proper care and attention till planting time. The best and most viable seed corn may have its germinating power greatly reduced by improper handling and storing during the winter months.

The first essential in the preservation of seed corn is a dry place. After having been allowed to dry out thoroughly in the fall, the ears should be carefully stored in a dry place where rats cannot get at them and where the corn weevil is not likely to bother. Seed corn should by no means be stored in an open crib or a damp cellar.

On one occasion, "Four bushels of corn were harvested and divided

into two equal parts. One part was well dried and kept dry during the winter in a seed house and the other kept in an ordinary 'corn crib. On rich bottom land the well preserved seed produced 18 bushels more per acre than the cribbed seed; while on poor upland, the well preserved seed produced 7 bushels more per acre than the cribbed seed. The cribbed seed germinated as well as the well preserved seed, but the resulting plants were less thrifty and less productive."

It is thus highly important that the seed corn be kept with great care through the winter months.

GERMINATION TEST.

Every farmer wants to know what per cent of his corn is capable of coming up, before he puts it into the ground. Some weeks before planting, therefore, the seed corn should always be put through the germination test. This may be done in different ways. Each ear may be shelled separately and ten grains put in moist soil or on moist blotting paper and kept in a warm place till they sprout. Note carefully how many of these ten grains, taken at random, make a good, vigorous germination, sending out both root and leaf. Another method allows all the seed corn to be shelled and a sample of one hundred grains taken at random and put in the test. In the first case the number of grains germinating multiplied by ten will give the per cent of germination secured. For example: if six grains out of the ten make a good germination this would equal a germination of 60 per cent. In the latter case the actual number of grains in the hundred that germinated would represent the percentage of germination secured. Note carefully the strength and rigor of germination, since some grains have enough vitality to barely germinate, but not enough to make much farther growth. It is much better to make a germination test of each ear, as by this method you can pick out and discard any that have low vitality, whereas this could not be done if all the ears were shelled together.

PLANTING.

Date of Planting.

The best time for planting corn will vary with the locality. In general, it is better to defer planting in favor of thorough preparation of the seed bed than to rush the seed into the ground while it is yet cold and damp from the frosts of winter. A good warm seed bed is very essential to the prompt germination and rapid early growth of the corn plant, and this condition cannot be obtained when the crop is planted too early. Again, early planted corn, unless planted very early, is generally more subject to the depredations of cut-worms and other insect pests, especially when planted on sod land, than when planted later.

Depth of Planting.

Early planted corn should not be planted so deep as that planted later in the season, since early in the spring the ground is cold and germination is more sluggish. As the season advances the depth of planting may be increased.

When the seed bed has been properly prepared, furrows should be run some five to six inches deep, leaving four to five inches of loose

finely pulverized soil between the bottom of this furrow and the unbroken sub-soil beneath. In the bottom of this furrow the corn should be planted, but covered shallow. Corn is generally planted too near the surface, especially in the piedmont section, where the midsummer drought is most severe. Here the corn should have its root system develop rather deeply in order to come in contact with better and more lasting moisture conditions. When a large amount of green vegetation has been cut up and incorporated with the soil it is highly necessary that the crop should be planted deep below the surface (but covered shallow) in order to escape the drying effects of the first three to four inches of the surface soil during the first two or three weeks of the season. Then, too, the root system gets thorough hold of the deeper soil and gradually, as the season advances, rises to the upper soil and finally occupies the whole soil stratum, thus utilizing all the available plant food present. Of course, corn must not be planted too deep, but a small amount of careful observation and a little experimentation on a given soil will enable the farmer to judge very closely of the proper depth of planting for best results. The more deeply planted corn does not grow off so rapidly, as a rule, but withstands the midsummer drought better and yields more corn in the fall.

Thickness of Planting.

The thickness of planting will vary with the variety and the fertility of the soil. It will be borne in mind that the high individual acre yields that have been made in the South during the past two or three years were not made so much by the increased prolificacy of the individual stalks as by the increased number of stalks per acre.

On account of the irregularity of our fields the checking of corn by means of the check-row planter is never likely to become general. The crop is now generally planted in the drill and, so far as we know, there is no economic necessity for changing this time-honored method.

The drilling of the crop gives the opportunity for proper spacing in the row; the thickness of planting can be regulated to a nicety. Experiments seem to indicate that one stalk in a hill with hills close together give better results than the same number of stalks per acre with, say, two stalks in a hill. That is, it is better to have the stalks twelve inches apart and one in a hill than to have the hills three feet apart and three stalks in a hill.

Thinning to a Stand.

The old corn planting proverb of "one for the jaybird, one for the crow, two for the cut worm, and one to grow" was based on sound philosophy. Enough corn should always be planted to the hill to insure the perfect stand, knowing full well that a number of accidents, such as are suggested in the above adage, are almost sure to occur.

When the plants get up some size and are ready for thinning the field should be thinned to a stand, not all at once, but gradually, say, in two or, possibly three different thinnings, the last one to be made when all probable accidents from depredations of birds, worms, and insects have passed. Having secured the perfect stand, the yield of the crop is then largely under the control of the farmer and will be in direct proportion to the fertility of his soil and the cultivation given the crop.

The next most important factor in the production of high yields is the variety or strain of corn used in planting the crop.

VARIETIES AND VARIETY TESTS.

We can never hope to get any one best variety of corn for all our different soil types and climatic conditions, but must expect each of the three or four geographic divisions of the State to develop and require varieties and strains of corn suited to their own peculiar conditions of soil and climate.

There are hundreds of different commercial varieties and strains of corn in the United States today. A number of these commercial varieties have distinguishing characteristics, while many of them have not, but are the same variety listed under different trade names for commercial purposes only. This is, of course, unfortunate, as it serves only to confuse the farmer and causes him, many times, to buy seed corn that he otherwise would not have bought had he known just what the would-be new variety represented. There are, however, a number of good and distinct varieties of corn in North Carolina grown by men of the highest integrity and put on the market under such trade names as will not confuse the buyer. Among these are Biggs' Seven-ear, Goodman's Prolific, Coker's Prolific, Weekley's Improved, Hickory King, Farmer's Favorite, and a number of others.

In the case of live stock, each breed or strain is developed to meet some special need or demand; so, also, in plants, in general, a variety is the result of a definite set of environmental conditions that have combined to produce the variations that go to make the new strain. The variety, then, is the result of either changed natural conditions or of effect along lines carefully laid with a view to adapt and adjust strains of plants to the new environmental conditions. The variety thus developed is, in the nature of the case, adapted to the surroundings where it has been making its best yields.

In the case of corn the mere existence of corn varieties carries with it the suggestion that they are not all equally well suited to all climatic and soil conditions, and that each one has, doubtless, proven to be the best variety tested in its native locality. We are to assume, then, that these are all good corns when grown under favorable soil and climatic conditions. Again, since varieties of plants are generally developed in a given locality under given soil and climatic conditions, it follows that they will make as good, if not better, yields when propagated under soil and climatic conditions similar to those under which they have been developed. Now, if there be a probability that varieties of corn will make better yields in their native environments than elsewhere, it follows that the adaptability of the many different varieties put on the market should be tested. If any of them are well suited to the climate and soils of our State it is worth our while to know it. Should they not be adapted to our conditions, such knowledge is a necessary protection against loss. The only way to gain this knowledge is to subject these corns to a rigid test on our soils. The recommendations of the seedmen are frequently unreliable, since they never know whether the environment in which the variety has been developed is similar to the one in which it will be forced to grow.

With a view then to protect the farmer against the frauds of unscrupulous seedmen and originators on the one hand, and to ascertain the varieties best suited to the soils of the State on the other, the North Carolina Agricultural Experiment Station began, several years ago, to collect corn varieties from different parts of the country, and to subject them to a rigid test on the recognized corn soils of the State. Since then over sixty different varieties have been collected and tested, some for longer, others for shorter periods.

The reader will bear in mind that in any given year all of the varieties tested were subjected to identical soil and climatic conditions at different points in the State and received identical treatment as to cultivation, fertilization, and previous preparation of land.

In 1912 we put out varieties of corn at a number of different points in the State, covering as many different soil types. Table No. 1 shows results of the test of twenty-nine different varieties on the black peaty soils of the Dismal Swamp lands at Moyock. The five highest yielding varieties here were White Majestic, Cocke's Prolific, Marlboro Prolific, Batts' Four-ear, and Weekley's Improved, while the five lowest ranking corns, in point of yield, were E-1-Corn, Cogswell, Shenandoah White Dent, and Boone County Special.

Table No. 2 shows the results obtained from the test of twenty-nine different varieties on the Norfolk fine sandy loam soils of Edgecombe County, on the Edgecombe Test Farm. Here the five highest yielding varieties were Biggs' Seven-ear, Parker's Prolific, Summerour, Marlboro Prolific, and Poole, while the lowest yielders were Sanders' Improved, Cross No. 176, Cogswell, Southern Beauty, and Selection 170, in the order named.

Table No. 3 shows results of tests of twenty-seven different varieties and strains on the Cecil loam soil of Iredell County at Statesville. Here the five highest yielding varieties were Biggs' Seven-ear, Gerrick's Prolific, First Generation Cross No. 182, Parker's Prolific, and Boone County Special; while Selection No. 170, Brooks' Pride, Cogswell, Sanders' Improved, and Selection No. 164 made the lowest yields in the order named.

Table No. 4 shows results of the test of thirty-five different varieties and strains on the Porters loam soil of Buncombe County on the Test Farm at Swannanoa. Here the five highest yielding varieties were Indian Twin, Batts' Four-Ear, First Generation Cross No. 182, Biggs' Seven-Ear, and Cogswell; while Weekley's Improved, Columbia Beauty, Selection No. 164, Snow Flake, and Brooks' Pride made the lowest yields in the order named.

Table No. 5 includes the compiled results of variety tests made at the Edgecombe Test Farm from 1909 to 1912 inclusive. During this time, from one cause or another, but seven varieties were carried through the tests of the entire period; the two highest yielding varieties were Biggs' Seven-ear and Hickory King; the two lowest yielders were Boone County White, and Parker's Prolific.

Table No. 6 contains results of the variety tests of corn at the Iredell Test Farm covering the same period. Here the two highest yielding strains, during the four year period, were Southern Beauty, and Parker's Prolific, with Goodman's Prolific and Hickory King making the lowest yielding records.

TABLE NO. 1.—VARIETY TEST OF CORN AT MOYOCK IN 1912

Varieties	Stalks Per Plat		Yield Per Plat		Yield Per Acre				Total Weights			Shelling Capacity		Rank According to Yield		
	For Perfect Stand	By Actual Count	Balks	Pounds of Stover	Pounds of Ears	Bushels of Shelled Corn	Bushels of Shelled Corn With Perfect Stand	Pounds of Ears to Shell One Bushel	Per Cent Stover	Per Cent Ears	Per Cent Grain	Per Cent Cob				
White Majestic.....	240	217	23	92	119	2,021	2,618	37.4	41.3	73	43.6	56.4	87.6	12.4	63	1
Cocke's Prolific.....	240	198	20	84	114	1,848	2,508	35.8	43.3	75	42.5	57.6	81.3	18.7	61	2
Marlboro Prolific (S. C. Grown).....	240	209	26	91	108	2,002	2,376	33.9	38.9	80	45.7	54.3	81.2	18.8	65	3
Batts' Four-ear.....	240	240	51	83.5	103.5	1,837	2,277	32.5	32.5	79	44.6	55.4	82.2	17.8	65	4
Weekley's Improved.....	240	185	19	69	98	1,518	2,156	30.8	39.9	75	41.3	58.7	82.6	17.4	62	5
Snow Flake.....	240	206	45	76	97	1,672	2,134	30.4	35.4	68	43.9	56.1	83.8	16.2	57	6
Blount's Prolific.....	240	168	3	67	90.5	1,474	1,991	28.4	40.5	76	42.5	57.5	80.2	19.8	61	7
First Gen. Cross No. 182.....	240	179	12	40	80	880	1,760	25.1	33.6	75	33.3	66.7	82.6	17.4	62	8
Indian Twin.....	240	187	28	56	79	1,232	1,738	24.8	36.1	76	41.4	58.6	81.5	18.5	62	9
Biggs' Seven-ear.....	240	190	18	51.5	77	1,133	1,694	24.2	30.5	78	40.0	60.0	82.0	18.0	64	10
Eureka.....	240	183	37	66.5	73	1,463	1,606	22.9	30.0	77	47.6	52.4	76.6	23.4	59	11
Goodman's Prolific.....	240	214	91	57.5	73	1,265	1,606	22.9	25.6	66	44.0	56.0	86.3	13.7	57	11
Poole.....	240	176	17	38.5	69	847	1,518	21.6	29.4	74	35.8	64.2	83.7	16.3	62	12
Sanders' Improved.....	240	153	17	53	68.5	1,166	1,507	21.5	33.7	69	43.6	56.4	86.9	13.1	60	13
Marlboro Prolific (Tenn. Grown).....	240	207	40	67	68	1,474	1,496	21.3	24.6	77	49.6	50.4	81.8	18.2	63	14
Columbia Beauty.....	240	156	10	32.5	62.5	715	1,375	19.6	30.1	70	34.2	65.8	85.7	14.3	60	15
Southern Beauty.....	240	157	21	35.5	61	781	1,342	19.1	29.1	67	36.7	63.3	86.5	13.5	58	16
Hickory King.....	240	134	9	43.5	59.5	957	1,309	18.7	33.4	7	42.2	57.8	84.0	16.0	63	17
Parker's Prolific.....	210	212	60	41	59	902	1,298	18.5	20.9	76	41.0	59.0	81.5	18.5	62	18
Summerour.....	240	217	110	61	57.5	1,342	1,265	18.0	19.9	72	51.4	48.6	83.3	16.7	60	19
Boone County Special.....	210	147	20	32	55	704	1,210	17.2	28.0	74	36.7	63.3	78.3	21.7	58	20
Shenandoah White Dent.....	240	120	13	33	53.5	726	1,177	16.8	33.6	72	38.1	61.9	83.3	16.7	60	21
Cogswell.....	240	179	45	46.5	50.5	1,023	1,111	15.8	21.7	81	47.9	52.1	77.7	22.3	63	22
E-1-Corn.....	240	182	10	56	48	1,332	1,056	15.0	19.7	71	53.8	46.2	81.6	18.4	58	23

TABLE No. II.—VARIETY TEST OF CORN AT THE EDGECOMBE TEST FARM IN 1912.

Varieties

Varieties	For Perfect Stand	By Actual Count	Barren Stalks	Pounds of		Pounds of Ears	Pounds of Stover	Pounds of Shelled Corn	Bushels of Shelled Corn	Bushels of Corn With Perfect Stand	Pounds to Shell One Bushel	Per Cent. Stover	Per Cent. Ears	Per Cent. Grain	Per Cent. Cob	Weight of Measured Bushel of Shelled Corn	Rank According to Yield
				Stover	Ears												
Biggs' Seven-ear.....	272	174	12	110	95	2,200	1,900	27.1	42.3	77	53.6	46.4	80.5	19.5	62	1	
Parker's Prolific.....	272	133	9	72.5	87.5	1,450	1,750	25	51.1	75	45.3	54.7	80.0	20.0	60	2	
Summerour.....	272	170	33	98.5	86.5	1,970	1,730	24.7	39.5	81	53.2	46.8	80.2	19.8	65	3	
Marlboro Prolific (Tennessee Grown).....	272	159	21	64	86	1,280	1,720	24.5	41.9	78.75	42.6	57.4	81.2	18.8	64	4	
Poole.....	272	143	5	72	78	1,440	1,560	22.2	42.2	73	48.0	52.0	82.1	17.9	60	5	
Goodman's Prolific.....	272	173	37	143	77	2,860	1,540	22	34.5	73	65.0	35.0	84.9	15.1	62	6	
Gerrick's Prolific.....	272	153	33	78	77	1,560	1,540	22	39.1	74.75	50.3	49.7	80.5	19.5	60	6	
Indian Twin.....	272	133	16	98	72	1,960	1,440	20.5	41.9	77	51.6	42.4	80.5	19.5	62	7	
Eureka.....	272	148	37	148.5	71.5	2,970	1,430	20.4	37.2	77.75	67.5	32.5	79.7	20.3	62	8	
Batts' Four-ear.....	272	136	17	49.5	70.5	990	1,410	20.1	40.2	77.5	41.2	58.8	80.0	20.0	62	9	
One-ear Corn.....	272	131	13	91	69	1,820	1,380	19.7	40.9	75	56.8	43.2	81.3	18.7	61	10	
Weekley's Improved.....	272	133	23	62	68	1,240	1,360	19.4	39.6	76	47.6	52.4	78.9	21.1	60	11	
Hickory King.....	272	141	20	48	67	960	1,340	19.1	36.8	67.5	41.7	58.3	85.9	14.1	58	12	
Cooke's Prolific.....	272	150	31	114	66	2,280	1,320	18.8	34.0	74	63.3	36.7	81.0	19	60	13	
Selection No. 177.....	272	135	11	40	65	800	1,300	18.5	37.2	74	38.0	62.0	83.7	16.3	62	14	
Selection No. 164.....	272	167	24	95	65	1,900	1,300	18.5	30.1	76	59.3	40.7	81.5	18.5	62	14	
White Majestic.....	272	131	7	105	65	2,100	1,300	18.5	37.4	75.25	61.7	38.3	82.3	17.7	62	14	
First Gen. Cross No. 182.....	272	127	10	51	64	1,020	1,280	18.2	39.7	72.25	44.3	55.7	80.2	19.8	58	15	
Marlboro Prolific (S. C. Grown).....	272	139	37	97	63	1,940	1,260	18.0	35.2	75	66.2	33.8	82.6	17.4	62	16	
Brooks' Pride.....	272	100	15	71	59	1,420	1,180	16.8	45.6	70	54.6	45.4	82.8	17.2	58	17	
Snow Flake.....	272	121	22	56	59	1,120	1,180	16.8	37.6	74	48.6	51.4	81.0	19.0	60	17	
Boone County Special.....	272	130	19	73	57	1,460	1,140	16.2	33.8	74.5	56.1	43.9	80.5	19.5	60	18	
Farley's Yellow Dent.....	272	126	24	58	57	1,160	1,140	16.2	34.9	70	50.4	49.6	80.0	20.0	56	18	
Columbia Beauty.....	272	135	17	101	54	2,020	1,080	15.4	31.0	72	65.1	34.9	80.5	19.5	58	19	
Selection No. 170.....	272	100	38	72	53	1,440	1,060	15.1	41.0	73	57.6	42.4	79.4	20.6	58	20	
Southern Beauty.....	272	110	15	87.5	52.5	1,750	1,050	15	37.0	66.25	62.5	37.5	86.0	14.0	57	21	
Cogswell.....	272	121	40	53.5	46.5	1,070	930	13.2	29.6	77	53.9	46.1	77.9	22.1	60	22	
Cross No. 176.....	272	145	13	68	42	1,360	840	12	22.5	61	61.8	38.2	81.9	18.1	50	23	
Sanders' Improved.....	272	140	35	113	37	2,260	740	10.5	20.4	69	75.3	24.7	84.0	16.0	58	24	

TABLE No. III.—VARIETY TEST OF CORN AT THE IREDELL TEST FARM IN 1912.

Varieties	Stalks Per Plat		Yield Per Plat		Yield Per Acre			Total Weights			Shelling Capacity		Rank According to Yield			
	For Perfect Stand	By Actual Count	Barren Stalks	Pounds of Stover	Pounds of Ears	Pounds of Stover	Pounds of Ears	Bushels of Shelled Corn	Bushels of Shelled Corn With Perfect Stand	Pounds of Ears to Shell One Bushel	Per Cent. Stover	Per Cent. Ears				
Biggs' Seven-ear.....	230	241	20	96.5	132.5	2,297	3,154	45.0	42.9	77.5	42.2	57.8	80.0	20.0	62	1
Gerrick's Prolific.....	230	211	26	128.5	99.75	3,059	2,375	43.7	47.6	75	56.3	43.7	80.0	20.0	60	2
First Gen. Cross No. 182.....	230	219	10	70.5	124	1,678	2,952	42.1	44.2	72	36.3	63.7	80.5	19.5	58	3
Parker's Prolific.....	230	225	19	87	122	2,071	2,904	41.4	42.3	76	41.7	58.3	79.6	20.4	60.5	4
Boone County Special.....	230	233	35	90	118.5	2,142	2,821	40.3	39.7	72	43.2	56.8	80.5	19.5	58	5
Poole.....	230	215	22	82	114	1,952	2,714	38.7	41.4	73	41.9	58.1	83.5	16.5	61	6
Indian Twin.....	230	191	17	81.5	113.5	1,940	2,702	38.6	46.4	78.5	41.8	58.2	79.6	20.4	62.5	7
Selection No. 177.....	230	205	24	81	113	1,928	2,690	38.4	43.0	72.5	41.8	58.2	82.7	17.3	60	8
Southern Beauty.....	230	223	7	85	112.5	2,023	2,678	38.2	39.3	68	43.1	56.9	83.8	16.2	57	9
Goodman's Prolific.....	230	229	38	112	112	2,666	2,666	38.0	38.1	71	50.0	50.0	85.9	14.1	61	10
Hickory King.....	230	228	25	92	106.5	2,191	2,535	36.2	36.5	70.5	46.5	53.5	85.1	14.9	60	11
Columbia Beauty.....	230	224	38	100	105	2,380	2,500	35.7	36.6	70	48.8	51.2	82.8	17.2	58	12
Batts' Four-ear.....	230	216	28	92.5	103.5	2,202	2,464	35.2	37.4	79.5	47.2	52.8	79.8	20.2	63.5	13
Marlboro Prolific (Tennessee Grown).....	230	214	18	90.5	103	2,154	2,452	35.0	37.6	80	46.8	53.2	80.0	20.0	64	14
Eureka.....	230	216	43	127	103	3,023	2,452	35.0	37.2	77	55.3	44.7	79.2	20.8	61	15
Weekley's Improved.....	230	217	28	82.5	101	1,964	2,404	34.3	36.3	77.5	45.0	55.0	80.6	19.4	63	16
Marlboro's Prolific (S. C. Grown).....	230	217	20	92	100	2,191	2,380	34.0	36.0	76.5	45.0	52.0	81.6	18.4	62.5	17
Coeke's Prolific.....	230	203	7	80	100	1,901	2,380	34.0	38.5	79.5	44.5	55.5	77.9	22.1	62	18
Farley's Yellow Dent.....	230	197	25	63.5	96.75	1,511	2,303	32.9	38.4	74	39.7	60.3	79.7	20.3	59	19
One Ear Corn.....	230	224	25	115	97	2,738	2,309	32.9	33.7	71	54.3	45.7	81.6	18.4	58	20
Cross No. 176.....	230	230	23	109	96.5	2,585	2,297	32.8	32.8	74	53.1	46.9	81.0	19.0	60	21
Summerour.....	230	231	24	115	93	2,738	2,214	31.6	31.4	78.5	55.3	44.7	80.2	19.8	63	22
Selection No. 164.....	230	189	27	84	82	2,000	1,952	28.5	34.6	75	50.7	49.3	81.3	18.7	61	23
Sanders' Improved.....	230	188	18	87	81	2,011	1,928	27.5	33.6	66.5	51.8	48.2	84.9	15.1	56.5	24
Cogswell.....	230	188	30	69	80.25	1,642	1,910	27.2	33.2	78	46.3	53.7	76.9	23.1	60	25
Brooks' Pride.....	230	191	21	81	79.5	1,928	1,892	27.0	32.5	69.5	50.5	49.5	83.4	16.6	58	26
Selection No. 170.....	230	201	22	106.5	72	2,535	1,714	24.4	27.9	74.5	50.7	40.3	76.3	23.7	56.5	27

TABLE No. IV.—VARIETY TEST OF CORN AT THE BUNCOMBE TEST FARM IN 1912.

Varieties	Stalks Per Plat		Yield Per Plat		Yield Per Acre			Total Weights			Shelling Capacity		Rank According to Yield		
	For Perfect Stand	By Actual Count	Barren Stalks	Pounds of Stover	Pounds of Ears	Pounds of Stover	Pounds of Ears	Bushels of Shelled Corn	Bushels of Shelled Corn With Perfect Stand	Per Cent. Stover	Per Cent. Ears	Per Cent. Grain		Per Cent. Cob	Weight of Measured Bushel of Shelled Corn
Indian Twin.....	120	120	2	60	78	2,160	2,808	40.1	40.1	43.4	56.6				1
Batts' Four-ear.....	120	123	1	48	77.5	1,728	2,690	38.4	37.4	39.1	60.9				1
First Gen. Cross No. 182.....	120	114	2	71	73	2,556	2,628	37.5	39.4	49.3	50.7				3
Biggs' Seven-ear.....	120	120	3	73	72	2,628	2,592	37.0	37.0	50.3	49.7				4
Cogswell.....	120	118	3	67	71	2,412	2,556	36.5	37.08	48.5	51.5				5
Weekley's Improved.....	120	122	5	78	71.5	2,808	2,574	35.9	35.3	52.5	47.5				6
Cocke's Prolific.....	120	119	4	54.5	68.5	1,962	2,466	35.2	35.4	46.5	53.5				7
Marlboro Prolific (Tennessee Grown).....	120	118	2	73.5	67.5	2,646	2,430	34.7	35.2	52.1	47.9				8
Selection No. 170.....	120	112	15	104	67	3,744	2,412	34.4	36.8	60.6	39.4				9
Selection No. 177.....	120	124	5	67	65.5	2,412	2,358	33.6	32.5	50.5	49.5				10
Gerrick's Prolific.....	120	115	11	77.5	65.5	2,690	2,358	33.5	34.9	53.2	46.8				11
Blount's Prolific.....	120	116	19	73.5	65	2,646	2,340	33.4	34.8	53.9	46.1				12
Boone County Special.....	120	115	4	76	65	2,736	2,340	33.1	34.8	53.9	46.1				12
Poole.....	120	124	4	58	64.5	2,088	2,322	33.1	32.0	47.3	52.7				13
Hickory King.....	120	120	2	60	64	2,160	2,304	32.8	32.8	48.3	51.7				14
Marlboro Prolific (South Carolina Grown).....	120	119	3	86	64	3,096	2,304	32.8	33.0	57.3	42.7				14
Parker's Prolific.....	120	118	0	80.5	62.5	2,898	2,250	32.1	32.6	56.2	43.8				15
White Majestic.....	120	120	4	49	61	1,764	2,196	31.3	31.3	44.5	55.5				16
Shenandoah White Dent.....	120	111	11	56	61	2,016	2,196	31.3	33.8	47.8	52.2				16
Iowa Silver Mine.....	120	118	10	52.5	61	1,890	2,196	31.3	31.8	46.2	53.8				16
Farley's Yellow Dent.....	120	117	5	48	60.5	1,728	2,178	31.1	31.8	44.2	55.8				17
Cross No. 176.....	120	110	8	82.5	60	2,970	2,160	30.8	36.3	57.8	42.2				18
One-ear Corn.....	120	117	7	85.5	59.5	3,078	2,142	30.6	31.3	58.9	41.1				19
Biggs' Seven-ear (native).....	120	120	9	54	59.5	1,944	2,142	30.6	30.6	47.5	52.5				19
Sanders' Improved.....	120	118	14	72.5	59	2,610	2,124	30.3	30.8	55.1	44.4				20

TABLE NO. IV.—VARIETY TEST OF CORN AT THE BUNCOMBE TEST FARM IN 1912—Continued.

Varieties	Stalks Per Plat		Yield Per Plat		Yield Per Acre			Total Weights		Shelling Capacity		Rank According to Yield.
	For Perfect Stand	By Actual Count	Barren Stalks	Pounds of		Pounds of Stover	Pounds of Ears	Bushels of Shelled Corn	Bushels of Shelled Corn with Perfect Stand	Per Cent. Stover	Per Cent. Ears	
				Stover	Ears							
Stevens' Favorite.....	120	118	10	53.6	58.5	1,926	2,106	30.0	30.5	47.7	52.3	21
Summerour.....	120	120	8	100	58	3,600	2,088	29.8	29.8	63.2	36.8	22
Eureka.....	120	117	7	72	58	2,592	2,088	29.8	30.5	55.3	44.7	22
Goodman's Prolific.....	120	118	10	70.5	56	2,538	2,016	28.8	29.2	55.7	44.3	23
Southern Beauty.....	120	113	9	67.5	55.5	2,430	1,998	28.5	30.2	54.8	45.2	24
Brooks' Pride.....	120	112	9	83.5	55.5	3,006	1,998	28.5	30.5	60.0	40.0	24
Snow Flake.....	120	120	4	57	55.5	2,052	1,998	28.5	28.5	50.6	49.4	24
Selection No. 164.....	120	120	5	103.5	54.5	3,726	1,962	28.0	28.0	65.5	34.5	25
Columbia Beauty.....	120	120	9	66	53.5	2,376	1,926	27.5	27.5	55.2	44.8	26
Weekley's Improved (native).....	120	122	5	32.5	45.5	1,170	1,638	23.4	23.0	41.6	58.4	27

TABLE No. V.—COMPILED RESULTS OF VARIETY TEST OF CORN—EDGECOMBE TEST FARM.

Varieties	1909			1910			1911			1912	Average for Four Years	
	Yield of Shelled Corn in Bushels	Rank According to Yield of Shelled Corn in Test of this Year	Yield of Shelled Corn in Bushels	Rank According to Yield of Shelled Corn in Test of this Year	Yield of Shelled Corn in Bushels	Rank According to Yield of Shelled Corn in Test of this Year	Yield of Shelled Corn in Bushels	Rank According to Yield of Shelled Corn in Test of this Year	Yield of Shelled Corn in Bushels	Rank According to Yield of Shelled Corn in Test of this Year	Average Yield of Shelled Corn Per Acre	Rank According to Average Yield
Biggs' Seven-ear.....	41.5	1	31.9	2	26.5	3	21.1	1	30.2	1	30.2	1
Hickory King.....	30	13	35.5	1	24.3	8	19.1	12	27.2	2	27.2	2
Weekley's Improved.....	40.7	2	23.3	15	20.6	17	19.4	11	26.0	3	26.0	3
Goodman's Prolific.....	31.5	10	23.6	13	26.3	4	22.0	6	25.8	4	25.8	4
Southern Beauty.....	27.2	21	31.3	3	27.6	2	15.0	21	25.2	5	25.2	5
Parker's Prolific.....	15.6	31	26.0	8	23.4	10	25.0	2	22.5	6	22.5	6
Boone County.....	13.7	32	25.1	10	21.4	16	16.2	18	19.1	7	19.1	7

TABLE No. VI.—COMPILED RESULTS OF VARIETY TEST OF CORN—IREDELL TEST FARM.

Varieties	1909			1910			1911			1912	Average for Four Years	
	Yield of Shelled Corn in Bushels	Rank According to Yield of Shelled Corn in Test of this Year	Yield of Shelled Corn in Bushels	Rank According to Yield of Shelled Corn in Test of this Year	Yield of Shelled Corn in Bushels	Rank According to Yield of Shelled Corn in Test of this Year	Yield of Shelled Corn in Bushels	Rank According to Yield of Shelled Corn in Test of this Year	Yield of Shelled Corn in Bushels	Rank According to Yield of Shelled Corn in Test of this Year	Average Yield of Shelled Corn Per Acre	Rank According to Average Yield
Southern Beauty.....	30.4	5	39.4	1	38.3	2	38.2	9	36.5	1	36.5	1
Parker's Prolific.....	34.2	1	35.2	6	34.0	9	41.4	4	36.2	2	36.2	2
Boone County.....	31.0	3	32.8	8	33.1	7	40.3	5	34.6	3	34.6	3
Weekley's Improved.....	26.5	14	38.4	2	38.9	1	34.3	15	34.5	4	34.5	4
Biggs' Seven-ear.....	26.0	17	29.5	16	32.4	16	45.0	1	33.2	5	33.2	5
Hickory King.....	21.5	30	32.1	9	34.6	8	36.2	11	21.1	6	21.1	6
Goodman's Prolific.....	24.2	22	31.7	11	31.8	18	33.0	10	30.7	7	30.7	7

THE BEST VARIETY TO USE.

In case care has been taken in the selection and adaptation of the seed, we unhesitatingly say the best variety for you to use is the one you have developed on your own farm. By adaptation we mean the growing of the same variety on the same kind of land for a sufficient length of time to allow it to become adjusted to its soil and climatic surroundings.

The varieties of corn that have given good results in the piedmont section for the past several years are Weekley's Improved, Southern Beauty, and Cocke's Prolific.

Those that have done well in the coastal plains section are Cocke's Prolific, Biggs' Seven-ear, Southern Beauty, and Hickory King.

Most of the varieties tested are one and two-eared corns, the leading prolifics being Biggs' Seven-Ear, Marlboro Prolific, Indian Twin, Blount's Prolific, and Weekley's Improved. The prolificacy of any corn, however, depends on the conditions of fertility under which it is grown, so that what may be a prolific variety one season or in one locality, may be a two or even a one-eared variety another season or in another locality.

SOURCES OF SEED CORN TESTED IN 1912.

1. Eureka T. W. Wood & Sons..... Richmond, Va.
2. Boone County Special.... T. W. Wood & Sons..... Richmond, Va.
3. Columbia Beauty T. W. Wood & Sons..... Richmond, Va.
4. Goodman's Prolific J. K. Goodman..... Mt. Ulla, N. C.
5. Southern Beauty L. A. Stroupe..... Tobaccolville, N. C.
6. Poole J. C. Poole..... Marion, N. C.
7. E-1-Corn D. B. Coker..... Hartsville, N. C.
8. Summerour D. A. Summerour..... Marietta, Ga.
9. Parker's Prolific T. B. Parker..... Raleigh, N. C.
10. Marlboro Prolific R. T. Malone..... Capleville, Tenn.
11. Biggs' Seven-Ear Noah Biggs Scotland Neck, N. C.
12. Hickory King A. C. Lee..... Hickory, N. C.
13. 1. Gen. Cross No. 182.... Bureau of Plant Industry.... Washington, D. C.
14. Indian Twin H. T. Macon..... Warrenton, N. C.
15. Batts' Four-Ear J. F. Batts..... Garner, N. C.
16. Cogswell B. C. Hawkins..... Highlands, N. C.
17. Marlboro Prolific Excelsior Seed Farm..... Cheraw, S. C.
18. Sanders' Improved (?) ... Experiment Farm..... West Raleigh, N. C.
19. Cocke's Prolific Edgcombe Farm..... Rocky Mount, N. C.
20. Weekley's Improved Iredell Farm Statesville, N. C.
21. Brook's Pride Bureau of Plant Industry.... Washington, D. C.
22. Selection No. 170..... Bureau of Plant Industry.... Washington, D. C.
23. Cross No. 176..... Bureau of Plant Industry.... Washington, D. C.
24. Selection No. 177..... Bureau of Plant Industry.... Washington, D. C.
25. Fraley's Yellow Dent.... Bureau of Plant Industry.... Washington, D. C.
26. Gerrick Prolific Bureau of Plant Industry.... Washington, D. C.
27. Selection No. 164..... Bureau of Plant Industry.... Washington, D. C.
28. Snow Flake T. W. Wood & Sons..... Richmond, Va.
29. White Majestic T. W. Wood & Sons..... Richmond, Va.
30. Blount's Prolific T. W. Wood & Sons..... Richmond, Va.
31. Shenandoah White Debt. T. W. Wood & Sons..... Richmond, Va.
32. Steven's Favorite F. M. Stevens..... Azalea, N. C.
33. Iowa Silver Mine (native) Buncombe Test Farm..... Swannanoa, N. C.
34. Weekley's Imp. (native) .. Buncombe Test Farm..... Swannanoa, N. C.
35. Biggs' Seven-Ear (native) Buncombe Test Farm..... Swannanoa, N. C.

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RALEIGH

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I. ANALYSES OF FERTILIZERS—SPRING SEASON, 1913.

II. REGISTRATION OF FERTILIZERS.

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*Assigned by the Bureau of Soils, United States Department of Agriculture.

†Assigned by the Bureau of Plant Industry, United States Department of Agriculture.

LETTER OF TRANSMITTAL.

RALEIGH, N. C., March 15, 1913.

HON. W. A. GRAHAM,

Commissioner of Agriculture.

SIR:—I submit herewith analyses of fertilizers made in the laboratory of samples collected during the spring. These analyses show fertilizers to be about as heretofore, and to be, generally, what was claimed for them. I recommend that it be issued as the March BULLETIN.

Very respectfully,

B. W. KILGORE,

State Chemist.

Approved for printing:

W. A. GRAHAM,

Commissioner.

I. ANALYSES OF FERTILIZERS—SPRING SEASON, 1913.

By B. W. KILGORE,

W. G. HAYWOOD, J. M. PICKEL, J. Q. JACKSON, AND E. S. DEWAR.

The analyses presented in this BULLETIN are of samples collected by the fertilizer inspectors of the Department, under the direction of the Commissioner of Agriculture, during the spring months of 1913. They should receive the careful study of every farmer in the State who uses fertilizers, as by comparing the analyses in the BULLETIN with the claims made for the fertilizers actually used, the farmer can know by or before the time fertilizers are put in the ground whether or not they contain the fertilizing constituents in the amounts they were claimed to be present.

TERMS USED IN ANALYSES.

Water-soluble Phosphoric Acid.—Phosphate rock, as dug from the mines, mainly in South Carolina, Florida, and Tennessee, is the chief source of phosphoric acid in fertilizers.

In its raw, or natural state, the phosphate has three parts of lime united to the phosphoric acid (called by chemists tri-calcium phosphate). This is very insoluble in water and is not in condition to be taken up readily by plants. In order to render it soluble in water and fit for plant food, the rock is finely ground and treated with sulphuric acid, which acts upon it in such a way as to take from the three-lime phosphate two parts of its lime, thus leaving only one part of lime united to the phosphoric acid. This one-lime phosphate is what is known as water-soluble phosphoric acid.

Reverted Phosphoric Acid.—On long standing some of this water-soluble phosphoric acid has a tendency to take lime from other substances in contact with it, and to become somewhat less soluble. This latter is known as reverted or gone-back phosphoric acid. This is thought to contain two parts of lime in combination with the phosphoric acid, and is thus an intermediate product between water-soluble and the original rock.

Water-soluble phosphoric acid is considered somewhat more valuable than reverted, because it becomes better distributed in the soil as a consequence of its solubility in water.

Available Phosphoric Acid is made up of the water-soluble and reverted; it is the sum of these two.

Water-soluble Ammonia.—The main materials furnishing ammonia in fertilizers are nitrate of soda, sulphate of ammonia, cotton-seed meal, dried blood, tankage, and fish scrap. The first two of these (nitrate of soda and sulphate of ammonia) are easily soluble in water and be-

come well distributed in the soil where plant roots can get at them. They are, especially the nitrate of soda, ready to be taken up by plants, and are therefore quick-acting forms of ammonia. It is mainly the ammonia from nitrate of soda and sulphate of ammonia that will be designated under the heading of water-soluble ammonia.

Organic Ammonia.—The ammonia in cotton-seed meal, dried blood, tankage, fish scrap, and so on, is included under this heading. These materials are insoluble in water, and before they can feed plants they must decay and have their ammonia changed, by the aid of the bacteria of the soil, to nitrates, similar to nitrate of soda.

They are valuable then as plant food in proportion to their content of ammonia, and the rapidity with which they decay in the soil, or rather the rate of decay, will determine the quickness of their action as fertilizers. With short season, quick-growing crops, quickness of action is an important consideration, but with crops occupying the land during the greater portion or all of the growing season, it is better to have a fertilizer that will become available more slowly, so as to feed the plant till maturity. Cotton-seed meal and dried blood decompose fairly rapidly, but will last the greater portion, if not all, of the growing season in this State. While cotton seed and tankage will last longer than meal and blood, none of these act so quickly, or give out so soon, as nitrate of soda and sulphate of ammonia.

Total Ammonia is made up of the water-soluble and organic; it is the sum of these two.

The farmer should suit, as far as possible, the kind of ammonia to his different crops, and a study of the forms of ammonia as given in the tables of analyses will help him to do this.

VALUATIONS.

To have a basis for comparing the values of different fertilizer materials and fertilizers, it is necessary to assign prices to the three valuable constituents of fertilizers—ammonia, phosphoric acid, and potash. These figures, expressing relative value per ton, are not intended to represent crop-producing power, or agricultural value, but are estimates of the commercial value of ammonia, phosphoric acid, and potash in the materials supplying them. These values are only approximate (as the costs of fertilizing materials are liable to change, as other commercial products are), but they are believed to fairly represent the cost of making and putting fertilizers on the market. They are based on a careful examination of trade conditions, wholesale and retail, and upon quotations of manufacturers.

Relative value per ton, or the figures showing this, represents the prices on board the cars at the factory, in retail lots of five tons or less, for cash.

To make a complete fertilizer the factories have to mix together in proper proportions materials containing ammonia, phosphoric acid, and

potash. This costs something. For this reason it is thought well to have two sets of valuations—one for the raw or unmixed materials, such as acid phosphate, kainit, cotton-seed meal, etc., and one for mixed fertilizers.

The values used last season were:

VALUATIONS FOR 1912.

In Unmixed or Raw Materials.

For phosphoric acid in acid phosphate.....	4	cents per pound.
For phosphoric acid in bone meal, basic slag, and Peruvian guano	3½	cents per pound.
For nitrogen	19½	cents per pound.
For potash	4	cents per pound.

In Mixed Fertilizers.

For phosphoric acid.....	4½	cents per pound.
For nitrogen	21	cents per pound.
For potash	5	cents per pound.

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In Mixed Fertilizers.

For phosphoric acid.....	4½	cents per pound.
For nitrogen	21	cents per pound.
For potash	5	cents per pound.

HOW RELATIVE VALUE IS CALCULATED.

In the calculation of relative value it is only necessary to remember that so many per cent means the same number of pounds per hundred, and that there are twenty hundred pounds in one ton (2,000 pounds).

With an 8-2-1.65 goods, which means that the fertilizer contains available phosphoric acid 8 per cent, potash 2 per cent, and nitrogen 1.65 per cent, the calculation is made as follows:

<i>Percentage or Lbs. in 100 Lbs.</i>	<i>Value Per 100 Lbs.</i>	<i>Value Per Ton, 2,000 Lbs.</i>
8 pounds available phosphoric acid at 4½ cents...	$0.36 \times 20 =$	\$ 7.20
2 pounds potash at 5 cents.....	$0.10 \times 20 =$	2.00
1.65 pounds nitrogen at 21 cents.....	$0.347 \times 20 =$	6.94
Total value	$0.817 \times 20 =$	\$16.14

Freight and merchant's commission must be added to these prices.

ANALYSES OF COMMERCIAL FERTILIZERS—SPRING SEASON, 1913.

Laboratory Number.	Name and Address of Manufacturer.	Name of Brand.	Where Sampled.	Percentage Composition or Parts per 100.						Relative Value per Ton at Factory.
				Available Phosphoric Acid.	Water-soluble Nitrogen.	Organic Nitrogen.	Total Nitrogen.	Equivalent to Ammonia.	Total Potash.	
MIXED FERTILIZERS.										
Brands claiming.....										
1704	Baugh & Sons Co., Norfolk, Va.....		Baugh's Animal Bone and Potash Com-pound.	8.00	.97	.88	1.85	2.25	2.21	17.18
1627	Eastern Cotton Oil Co., Hartford, N. C.....		Perquimans Favorite.....	7.50	.60	1.59	2.19	2.66	3.18	18.13
1579	Imperial Co., Norfolk, Va.....		Champion Guano.....	8.08	.99	.68	1.67	2.03	2.16	16.45
1762	Martin, D. B., Co., Norfolk, Va.....		Martin's Carolina Cotton.....	8.92	1.07	.90	1.97	2.40	2.19	18.49
1763	Navassa Guano Co., Wilmington, N. C.....		Navassa Cotton-seed Meal Guano.....	8.53	.17	1.52	1.69	2.05	1.94	16.71
1609	Patapasco Guano Co., Baltimore, Md.....		Sea Gull Ammoniated Guano.....	7.77	1.27	.56	1.83	2.22	2.34	17.02
1653	Pine Level Oil Mill Co., Pine Level, N. C.....		Cotton Grower for All Crops.....	7.75	.34	1.55	1.89	2.30	3.02	17.93
1658	Rasin-Monumental Co., Baltimore, Md.....		Empire Guano.....	8.24	.24	1.85	2.09	2.51	2.30	18.49
1768	Richmond Guano Co., Richmond, Va.....		Premium Brand Fertilizer.....	8.59	1.41	.44	1.85	2.25	2.34	17.84
1631	do.....		do.....	8.03	1.20	.69	1.89	2.30	2.16	17.32
1570	Swift Fertilizer Works, Atlanta, Ga.....		Swift's Red Steer Standard Grade Guano.	7.90	1.11	1.12	2.33	2.83	2.19	19.09
1769	Va.-Car. Chemical Co., Richmond, Va.....		Charlotte Oil and Fertilizer Co.'s King Cotton Grower.	8.77	.27	1.56	1.83	2.22	2.03	17.61
1577	do.....		Durham Fertilizer Co.'s Genuine Bone and Peruvian Guano.	7.77	1.39	.72	2.11	2.57	2.77	18.62
1669	do.....		V.-C. C. Co.'s Plant Food.....	8.17	.30	1.53	1.83	2.22	2.15	17.19
1708	do.....		Winston's Special for Cotton.....	8.92	.23	1.60	1.83	2.22	2.17	16.88
1657	Wilson Chemical Co., Wilson, N. C.....		Cotton States Standard.....	8.40	.88	1.27	2.15	2.61	2.56	19.15

	Brand claiming		8.00	1.65	2.00	10.00	24.13
1621	Union Guano Co., Winston, N. C.	Union Potato Mixture	8.88	1.18	.43	1.96	11.32
	Brands claiming		8.00	2.06	2.50	3.00	18.85
1701	Acme Mfg. Co., Wilmington, N. C.	Tip Top Tobacco Grower	8.00	.97	1.34	2.31	3.07
1600	Va.-Car. Chemical Co., Richmond, Va.	Va.-Car. Chemical Co.'s Blue Star C. S. M.	7.74	.35	1.98	2.33	3.07
	Brands claiming		8.00	2.47	3.00	3.00	20.57
1603	Acme Mfg. Co., Wilmington, N. C.	Best's Fish Scrap Guano	8.10	1.05	1.26	2.31	3.31
1700	do	Pee Dee Special Fertilizer	7.55	1.24	1.27	2.51	3.12
1759	American Agricultural Chemical Co., New York, N. Y.	Eureka Cotton-seed Meal Guano	8.89	1.73	.74	2.47	3.03
1589	Armour Fertilizer Works, Atlanta, Ga.	Armour's Cotton Special	8.18	1.49	1.00	2.49	3.03
1642	Baugh & Sons Co., Norfolk, Va.	Baugh's Grand Rapid High Grade Guano	8.14	1.88	.55	2.43	3.31
1703	do	Baugh's High Grade Tobacco Guano	8.57	1.61	.92	2.53	3.23
1775	Burton, C. J., Guano Co., Baltimore, Md.	Tobacco Queen	8.30	1.77	.94	2.71	3.29
1614	Clayton Oil Mill, Clayton, N. C.	C. O. M. Planters' Favorite	8.61	.51	2.02	2.53	3.08
1675	Columbia Guano Co., Norfolk, Va.	High Grade Cotton Guano	8.47	1.36	1.31	2.67	3.25
1561	do	Hyco Tobacco Guano	7.84	1.65	.84	2.49	3.03
1595	Conestee Chemical Co., Wilmington, N. C.	Conestee 8-3-3 C. S. M. Guano	8.28	1.17	1.54	2.71	3.29
1606	Contentnea Guano Co., Wilson, N. C.	Pick Leaf	8.41	1.01	1.40	2.41	2.93
1651	Craven Chemical Co., New Bern, N. C.	C. E. F. High Grade Guano	7.05	1.17	1.55	2.72	3.31
1596	Hampton Guano Co., Norfolk, Va.	P. P. P. Princess Prolific Producer	7.84	1.91	.72	2.63	3.20
1689	Martin, D. B., Co., Norfolk, Va.	Martin's Bull Head Fertilizer	8.58	1.16	1.07	2.23	2.71
1617	Navassa Guano Co., Wilmington, N. C.	Navassa Standard Meal Guano	8.10	.99	1.50	2.49	3.03
1607	Ober, G., & Sons Co., Baltimore, Md.	Ober's Special Compound for Tobacco	8.05	1.93	.80	2.73	3.32
1692	Pamlico Chemical Co., Washington, N. C.	Pamlico Success Guano	8.95	1.04	1.57	2.61	3.17
1654	Pine Level Oil Mill Co., Pine Level, N. C.	Pine Level High Grade Fertilizer	7.84	.90	1.71	2.61	3.17
1706	Pocomoke Guano Co., Norfolk, Va.	Monarch Tobacco Grower	8.43	1.81	.76	2.57	3.12
		Fair Bluff				3.14	21.52

1597	Navassa Guano Co., Wilmington, N. C.	Special Meal Fertilizer	Warsaw	8.55	1.83	1.34	3.17	3.85	4.46	25.47
1771	N. C. Cotton Oil Co., Henderson, N. C.	Two in One for Cotton	Lillington	8.67	.31	2.14	3.45	4.19	4.51	26.80
1598	N. C. Cotton Oil Co., Wilmington, N. C.	Wilmington Truck Grower	Clinton	8.28	1.90	1.55	3.45	4.19	4.40	26.26
1562	Ober, G., & Sons Co., Baltimore, Md.	Ober's High Grade Fertilizer	Kinston	9.20	2.11	1.18	3.29	4.00	4.42	26.52
1573	Roberson Mfg. Co., Lumberton, N. C.	Gold Dollar	Lumberton	8.39	1.63	1.44	3.07	3.73	4.28	24.72
1610	Scotland Neck Guano Co., Scotland Neck, N. C.	Noah Biggs' Cotton-seed Meal and Fish Scrap Guano	Nashville	8.00	1.45	1.76	3.21	3.90	4.08	24.76
1620	Union Guano Co., Winston, N. C.	Union Premium Guano	Clinton	8.40	2.16	1.11	3.27	3.98	4.19	25.48
1583	Va.-Car. Chemical Co., Richmond, Va.	V.-C. C. Co.'s Special	Rockingham	8.09	2.99	.44	3.43	4.17	4.74	26.55
	Brand claiming			8.00			3.29	4.00	5.00	26.02
1586	Va.-Car. Chemical Co., Richmond, Va.	Powers, Gibbs & Co.'s Truck Farmers' Special Ammoniated Guano	Rockingham	8.10	3.63	.28	3.91	4.75	5.43	29.14
	Brand claiming			8.00			3.70	4.50	7.00	29.74
1671	Va.-Car. Chemical Co., Richmond, Va.	Muse Special	Fremont	7.38	1.94	1.09	3.03	3.68	7.64	27.01
	Brand claiming			8.00			4.11	5.00	7.00	31.46
1643	Southern Exchange Co., Maxton, N. C.	McKinnon's Special Truck Formula	Maxton	8.09	3.16	1.03	4.19	5.09	7.13	32.01
	Brands claiming			9.00			2.26	2.75	2.00	19.59
1673	Atlantic Chemical Co., Norfolk, Va.	Atlantic Meal Compound	Edenton	9.01	.86	1.35	2.21	2.69	2.02	19.41
1690	Pamlico Chemical Co., Washington, N. C.	Prosperity Cotton Grower	Washington	9.77	1.08	1.37	2.45	2.98	2.40	21.48
1611	Va.-Car. Chemical Co., Richmond, Va.	V.-C. C. Co.'s Prolific Cotton Grower	Nashville	8.55	.73	1.64	2.37	2.88	2.61	20.26
1625	do	V.-C. C. Co.'s Southern Cotton Grower	Selma	9.20	.78	1.59	2.37	2.88	2.13	20.36
	Brand claiming			9.00			2.47	3.00	2.00	20.47
1604	Acme Mfg. Co., Wilmington, N. C.	Acme Cotton Grower	Elm City	9.37	.95	1.46	2.41	2.93	2.13	20.68
	Brand claiming			9.00			2.47	3.00	3.00	21.47
1619	Patapasco Guano Co., Baltimore, Md.	Patapasco Tobacco Fertilizer	Selma	9.19	1.98	.63	2.61	3.17	3.01	22.24
	Brand claiming			10.00			2.06	2.50	4.50	22.15
1760	Clayton Oil Mill, Clayton, N. C.	C. O. M. Wheat Compound	Benson	10.97	.27	2.02	2.29		4.39	23.88

ANALYSES OF COMMERCIAL FERTILIZERS—SPRING SEASON, 1913.

Laboratory Number.	Name and Address of Manufacturer.	Name of Brand.	Where Sampled.	Percentage Composition or Parts per 100.						Total Potash.	Relative Value per Ton at Factory.
				Available Phosphoric Acid.	Water-soluble Nitrogen.	Organic Nitrogen.	Total Nitrogen.	Equivalent to Ammonia.			
MIXED FERTILIZERS.											
Brands claiming											
1623	Union Guano Co., Winston, N. C.	Union Truck Guano	Clinton	7.00			3.29	4.00	5.00	\$ 25.12	
Brands claiming											
1691	Pamlico Chemical Co., Washington, N. C.	Pamlico Favorite Potato Grower	Washington	8.14	2.32	1.33	3.65	4.44	5.18	27.84	
1693	Pocomoke Guano Co., Norfolk, Va.	Standard Truck Guano	Elizabeth City	7.57	3.10	1.07	4.17	5.07	5.74	30.07	
1683	Upshur, R. L., Guano Co., Norfolk, Va.	Upshur's 5 Per Cent Guano	Elizabeth City	7.17	1.84	1.79	3.63	4.41	6.28	27.99	
1636	Va.-Car. Chemical Co., Richmond, Va.	V.-C. C. Co.'s Konqueror H. G. Truck Fertilizer.	Washington	6.17	3.06	1.17	4.23	5.14	4.96	28.28	
Brands claiming											
1629	Pamlico Chemical Co., Washington, N. C.	Pamlico Special Irish Potato	Washington	7.62	2.60	1.57	4.17	5.07	7.28	31.65	
Brands claiming											
1585	Va.-Car. Chemical Co., Richmond, Va.	Old Dominion Guano Co.'s Potato Manure.	Rockingham	6.77	4.14	.24	4.38	5.33	8.47	32.96	
Brands claiming											
1713	Pan-American Fertilizer Co., New York, N. Y.	Dixie Standard	South Mills	6.00	2.23	2.08	4.11	5.00	5.00	27.66	
Brands claiming											
1688	Baugh & Sons Co., Norfolk, Va.	Baugh's 7 Per Cent Potato Guano	Elizabeth City	6.11	4.66	1.09	5.75	6.99	5.18	34.59	
Brands claiming											
1681	Davis, C. E., Packing Co., Reedville, Va.	Upshur's Special Fish Guano for Potatoes and Vegetables.	Elizabeth City	6.68	1.62	2.39	4.01	4.88	7.00	29.66	

1746	Imperial Co., Norfolk, Va.	5-6-7 Potato Guano	Elizabeth City	6.10	3.07	1.08	4.15	5.05	7.15	30.07
1712	Pan-American Fertilizer Co., New York, N. Y.	Pan-American Carolina Trucker	South Mills	6.04	2.11	1.96	4.07	4.95	7.78	30.31
1691	Royster, F. S., Guano Co., Norfolk, Va.	Royster's Irish Potato Guano	Elizabeth City	6.30	3.20	.97	4.17	5.07	7.01	30.19
1572	Swift Fertilizer Works, Atlanta, Ga.	Swift's Special Potato Grower, H. G.	Burgaw	6.30	.69	3.06	3.75	4.56	7.04	28.46
Brands claiming										
1679	Pan-American Fertilizer Co., Norfolk, Va.	Pan-American Universal Trucker	Elizabeth City	6.22	4.16	1.55	5.71	6.94	5.47	35.14
1695	Upshur, R. L., Guano Co., Norfolk, Va.	7 Per Cent Special Potato Guano	Elizabeth City	5.11	3.90	2.15	6.05	7.36	5.28	35.29
1635	Winborne Guano Co., Norfolk, Va.	Big Crop 7 Per Cent Guano	Edenton	6.46	2.40	2.83	5.23	6.36	5.26	33.04
Brand claiming										
1644	Acme Mfg. Co., Wilmington, N. C.	Acme Bone and Potash	Maxton	10.47					2.00	11.00
Brands claiming										
1842	Imperial Co., Norfolk, Va.	Catawba Wheat Grower	Gibsonville	10.00					4.00	13.00
1773	Navassa Guano Co., Wilmington, N. C.	Navassa Wheat and Grass Grower	Lillington	10.60					3.85	13.39
1934	Va.-Car. Chemical Co., Richmond, Va.	V.-C. C. Co.'s Special Potash Mixture	Burlington	10.77					4.57	14.26
Brand claiming										
1832	Wilson Chemical Co., Wilson, N. C.	Bone and Potash Mixture, No. 3	Coats	10.15					3.29	12.42
Brand claiming										
1567	Home Fertilizer and Chemical Co., Baltimore, Md.	Boykin's Dissolved Animal Bone	Kinston	10.00					5.00	14.00
				10.88					4.36	14.15
				12.00			1.65	2.00		17.73
				12.91	.91	.86	1.77	2.15		18.52

ANALYSES OF COMMERCIAL FERTILIZERS—SPRING SEASON, 1912.

Laboratory Number.	Name and Address of Manufacturer.	Name of Brand.	Where Sampled.	Percentage Composition or Parts per 100.					Relative Value per Ton at Factory.
				Available Phosphoric Acid.	Water-soluble Nitrogen.	Organic Nitrogen.	Total Nitrogen.	Equivalent to Ammonia.		Total Potash.
RAW OR UNMINED FERTILIZER MATERIALS.									
Brands claiming									
1794	Acme Mfg. Co., Wilmington, N. C.	Acme High Grade Acid Phosphate.	Clarkton	14.00					\$ 11.20
1590	Union Guano Co., Winston, N. C.	Union High Grade Acid Phosphate.	Wadesboro	14.47					11.58
				14.86					11.89
Brands claiming									
1795	Acme Mfg. Co., Wilmington, N. C.	16 Per Cent Acid Phosphate	Clarkton	16.00					12.80
1742	American Agricultural Chemical Co., New York, N. Y.	Lazaretto 16 Per Cent Acid Phosphate.	Edenton	16.75					13.40
1741	Baugh & Sons Co., Norfolk, Va.	Baugh's 16 Per Cent Acid Phosphate.	Elizabeth City	16.20					12.96
1845	Columbia Guano Co., Norfolk, Va.	Columbia High Grade 16 Per Cent Acid Phosphate.	Greensboro	16.28					13.02
1816	Cooper Guano Co., Wilmington, N. C.	Cooper's 16 Per Cent Acid Phosphate.	Bladenboro	16.85					13.48
1740	Foreign Products Co., Baltimore, Md.	16 Per Cent Acid Phosphate	Edenton	16.52					13.22
1906	do	do	Edenton	16.67					13.34
1650	Interstate Chemical Co., Charlotte, N. C.	Acid Phosphate.	Laurinburg	16.52					13.22
1817	do	do	Gastonia	17.35					13.88
1806	Josey, N. B., Guano Co., Tarboro, N. C.	Josey's 16 Per Cent Acid Phosphate.	Williamston	16.79					13.43
1685	Martin, D. B., Co., Norfolk, Va.	Martin's Bull Head Acid Phosphate.	Elizabeth City	16.55					13.24
1774	Navassa Guano Co., Wilmington, N. C.	Navassa 16 Per Cent Acid Phosphate.	Lillington	15.41					12.33
1649	do	do	Laurinburg	16.30					13.04
				16.29					13.03

1640	Pamlico Chemical Co., Washington, N. C.	Pamlico 16 Per Cent Acid Phosphate	Washington	16.70					13.36
1815	Pearsall & Co., Wilmington, N. C.	Pearsall's 16 Per Cent Acid Phosphate	Bladenboro	16.20					12.96
1814	Richmond Guano Co., Richmond, Va.	Rex Dissolved Bone	Monroe	16.01					12.81
1639	Royster, F. S., Guano Co., Norfolk, Va.	Royster's High Grade 16 Per Cent Acid Phosphate	Edenton	16.25					13.00
1805	Swift Fertilizer Works, Atlanta, Ga.	Swift's High Grade Acid Phosphate	Williamston	16.13					12.90
1846	Union Guano Co., Winston, N. C.	Union 16 Per Cent Acid Phosphate	Greensboro	16.75					13.40
1684	Upshur, R. L., Guano Co., Norfolk, Va.	Acid Phosphate	Elizabeth City	16.40					13.12
1578	Va.-Car. Chemical Co., Richmond, Va.	V.-C. C. Co.'s 16 Per Cent Acid Phosphate	Lumberton	15.29					12.23
1591	do	Va. State Fertilizer Co.'s Bull Run Acid Phosphate	Wadesboro	16.20					12.96
	Brand claiming							2.00	1.60
1646	Lee, A. S., & Sons Co., Richmond, Va.	Lee's Prepared Agricultural Lime	Laurinburg					2.21	1.77
	Brands claiming							12.00	9.60
1648	Acme Mfg. Co., Wilmington, N. C.	German Kainit	Maxton					13.08	10.46
1698	Eastern Cotton Oil Co., Hertford, N. C.	Genuine German Kainit	Glyden					12.69	10.15
1739	Foreign Products Co., Baltimore, Md.	do	Edenton					13.11	10.49
1647	McNair, John F., Laurinburg, N. C.	do	Laurinburg					13.31	10.65
1793	Pearsall & Co., Wilmington, N. C.	do	Clarkton					13.15	10.52
1637	Royster, F. S., Guano Co., Norfolk, Va.	do	Edenton					13.39	10.71
1587	Union Guano Co., Winston, N. C.	do	Wadesboro					12.69	10.15
1568	Va.-Car. Chemical Co., Richmond, Va.	do	Kinston					13.93	11.14
	Brands claiming							48.00	38.40
1588	German Kali Works, New York, N. Y.	Muriate of Potash	Laurel Hill					50.05	40.04
1755	Pamlico Chemical Co., Washington, N. C.	do	Washington					49.77	39.82
1602	Va.-Car. Chemical Co., Richmond, Va.	do	Mount Olive					50.11	40.09
	Brand claiming							50.00	40.00
1757	Foreign Products Co., Baltimore, Md.	do	Washington					50.48	40.38

ANALYSES OF COMMERCIAL FERTILIZERS—SPRING SEASON, 1913.

Laboratory Number.	Name and Address of Manufacturer.	Name of Brand.	Where Sampled.	Percentage Composition or Parts per 100.					Relative Value per Ton at Factory.
				Available Phosphate.	Water-soluble Nitrogen.	Organic Nitrogen.	Total Nitrogen.	Equivalent to Ammonia.		Total Potash.
RAW OR UNMIXED FERTILIZER MATERIALS.									
Brand claiming									
1686	Martin, D. B., Co., Norfolk, Va.	Tankage	Elizabeth City				5.77	7.02	\$ 22.50
Brands claiming									
1899	Josey, N. B., Guano Co., Tarboro, N. C.	Fish Scrap	Tarboro				4.93	5.99	18.23
1754	Pamlico Chemical Co., Washington, N. C.	Ground Fish	Washington				8.23	10.00	32.10
Brand claiming									
1753	Pamlico Chemical Co., Washington, N. C.	Dried Blood	Washington				8.90	10.82	34.71
Brands claiming									
1645	Grace, W. R., & Co., New York, N. Y.	Nitrate of Soda	Laurinburg				7.88	9.58	30.73
1752	Wessell, Duvall & Co., New York, N. Y.	do	Washington				13.20	16.05	51.48
							13.10	15.93	51.09
							14.85	18.05	57.91
							15.86	19.28	61.85
							15.86	19.28	61.85

II. BRANDS REGISTERED—FALL SEASON, 1912.

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
<i>The Atlantic Chemical Corporation, Norfolk, Va.—</i>			
Pure Raw Bone Meal.....Total	21.50	3.71	....
Acco Thomas Phosphate Total	18.00	....	....
Atlantic High Grade 16 Per Cent Acid Phosphate	16.00	....	....
Atlantic 14 Per Cent Acid Phosphate.....	14.00	....	....
Atlantic Dissolved Bone.....	13.00	....	....
Atlantic Corn Special.....	12.00	1.02	2.00
Atlantic Acid Phosphate.....	12.00	....	....
Atlantic 11 and 5 Bone and Potash Mixture..	11.00	....	5.00
Atlantic 10 and 5 Bone and Potash Mixture..	10.00	....	5.00
Atlantic 10 and 4 Bone and Potash Mixture..	10.00	....	4.00
Atlantic Bone and Potash for Grain.....	10.00	....	3.00
Atlantic Bone and Potash Mixture.....	10.00	....	2.00
Acco Tobacco Guano.....	9.00	2.47	3.00
Atlantic Meal Compound.....	9.00	2.27	2.00
Atlantic Cotton Grower.....	9.00	2.06	1.00
Corona Cotton Compound.....	9.00	1.65	3.00
Atlantic Special Guano.....	9.00	1.65	1.00
Atlantic Grain Guano.....	9.00	.82	3.00
Atlantic Fish Guano.....	9.00	.82	3.00
Atlantic 4-8-5 Special Tobacco Grower.....	8.00	3.30	5.00
Atlantic Special Truck Guano.....	8.00	3.30	4.00
Oriental High Grade Guano.....	8.00	3.30	4.00
Paloma Tobacco Guano.....	8.00	3.30	4.00
Pitt County Light Tobacco Special.....	8.00	2.47	5.00
Boone's Special	8.00	2.47	4.00
Atlantic High Grade Tobacco Guano.....	8.00	2.47	3.00
Atlantic High Grade Cotton Guano.....	8.00	2.47	3.00
Atlantic Tobacco Grower.....	8.00	2.06	3.00
Atlantic Tobacco Compound.....	8.00	2.06	2.00
Atlantic Special Wheat Fertilizer.....	8.00	1.65	2.00
Atlantic Soluble Guano.....	8.00	1.65	2.00
Atlantic Soluble Guano for Tobacco.....	8.00	1.65	2.00
Apex Peanut Grower.....	8.00	1.02	4.00
Atlantic 8 and 5 Bone and Potash Mixture...	8.00	....	5.00
Atlantic 8 and 4 Bone and Potash Mixture...	8.00	....	4.00
Atlantic 7 Per Cent Truck Guano.....	7.00	5.77	7.00
Atlantic Potato Guano.....	7.00	4.12	5.00
Perfection Peanut Grower.....	7.00	....	5.00
Atlantic Special Potato Guano.....	6.00	4.12	7.00
Atlantic 6-2-5 Special.....	6.00	1.65	5.00
Atlantic Side Dresser.....	4.00	8.22	4.00
Atlantic Special Top Dresser.....	4.00	6.18	2.50
Nitrate of Soda.....	....	15.22	....
Atlantic Top Dresser.....	....	7.42	3.00
Sulphate of Potash.....	....	....	48.00
Muriate of Potash.....	....	....	48.00
Genuine German Kainit.....	....	....	12.00

Geo. L. Arps & Co., Norfolk, Va.—

Arps' H. G. 16 Per Cent Acid Phosphate.....	16.00	....	....
14 Per Cent Acid Phosphate.....	14.00	....	....

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Arps' 10 and 4 Bone and Potash Mixture....	10.00	....	4.00
Arps' 10 and 2 Bone and Potash Mixture....	10.00	....	2.00
Arps' "Go-a-Head" Guano for Trucks, Cotton and Tobacco	8.00	3.30	4.00
Arps' Quick Growth for All Crops.....	8.00	2.47	3.00
Arps' Premium Guano for Cotton, Tobacco, and All Spring Crops.....	8.00	1.65	2.00
Arps' Big Yield Guano.....	8.00	1.65	2.00
Arps' Standard Truck Guano.....	7.00	4.12	6.00
Arps' Potato Guano.....	6.00	5.76	5.00
Arps' Scuppernong Guano for Trucks.....	6.00	4.12	7.00
Arps' Potato and Truck Special.....	6.00	4.12	7.00
Genuine German Kainit.....	....	....	12.00

Acme Manufacturing Co., Wilmington, N. C.—

16 Per Cent Acid Phosphate.....	16.00	....	....
Acme High Grade Acid Phosphate.....	14.00	....	....
Acme Acid Phosphate.....	13.00	....	....
Acme Bone and Potash.....	12.00	....	6.00
Acme Bone and Potash.....	12.00	....	5.00
Acme Bone and Potash.....	12.00	....	4.00
Acme Bone and Potash.....	12.00	....	3.00
Acme Bone and Potash.....	12.00	....	2.00
Acme Bone and Potash.....	11.00	....	6.00
Acme Bone and Potash.....	11.00	....	5.00
Acme Bone and Potash.....	11.00	....	4.00
Acme Bone and Potash.....	11.00	....	3.00
Acme Bone and Potash.....	11.00	....	2.00
Acme Melon Grower.....	10.00	3.30	5.00
Acme Bone and Potash.....	10.00	....	6.00
Acme Bone and Potash.....	10.00	....	5.00
Acme Bone and Potash.....	10.00	....	4.00
Acme Bone and Potash.....	10.00	....	3.00
Acme Bone and Potash.....	10.00	....	2.00
Acme Cotton Grower.....	9.00	2.27	2.00
Acme Special Fertilizer for Cotton.....	8.00	4.12	7.00
Acme Special Fertilizer for Tobacco.....	8.00	4.12	7.00
Acme Plumb Good Fertilizer.....	8.00	3.30	6.00
Acme "OK" Fertilizer.....	8.00	3.30	4.00
Acme "OK" Fertilizer for Tobacco.....	8.00	3.30	4.00
Quick Step Fertilizer	8.00	3.30	4.00
Quick Step Fertilizer for Tobacco.....	8.00	3.30	4.00
Acme Crop Grower.....	8.00	2.47	4.00
Currie's High Grade Fertilizer.....	8.00	2.47	4.00
Acme Crop Grower for Tobacco.....	8.00	2.47	4.00
Best's Fish Scrap Guano for Tobacco.....	8.00	2.47	3.00
Best's Fish Scrap Guano.....	8.00	2.47	3.00
Pee Dee Special Fertilizer.....	8.00	2.47	3.00
Pee Dee Special for Tobacco.....	8.00	2.47	3.00
Acme 8-3-3 C. S. M. Guano.....	8.00	2.47	3.00
Acme 8-3-3 C. S. M. Guano for Tobacco.....	8.00	2.47	3.00
Acme Plant Food.....	8.00	2.47	2.50
Acme Fertilizer for Tobacco.....	8.00	2.47	2.50
Acme Fertilizer	8.00	2.47	2.50
Tip Top Crop Grower.....	8.00	2.06	3.00
Tip Top Tobacco Grower.....	8.00	2.06	3.00
Latimer's Complete Fertilizer.....	8.00	2.06	2.00
Acme Standard Guano.....	8.00	2.06	2.00
Best's Complete Fertilizer.....	8.00	2.06	2.00
Cotton-seed Meal Guano.....	8.00	1.65	2.00
Gem Fertilizer	8.00	1.65	2.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Cotton-seed Meal Guano for Tobacco.....	8.00	1.65	2.00
Gem Fertilizer for Tobacco.....	8.00	1.65	2.00
Acme Special Grain Fertilizer.....	8.00	1.65	2.00
Acme Bone and Potash.....	8.00	....	6.00
Acme Bone and Potash.....	8.00	....	5.00
Acme Bone and Potash.....	8.00	....	4.00
Acme Root Crop Guano.....	7.00	4.12	7.00
Acme Standard Truck Guano.....	7.00	4.12	5.00
Acme High Grade Guano.....	6.00	4.94	8.00
Acme Truck Grower.....	6.00	3.30	8.00
Acme Corn Guano.....	6.00	2.47	3.00
Dried Fish Scrap.....	4.50	8.02	....
Acme Special 4-10-4 Guano.....	4.00	8.25	4.00
Clark's Corn Guano.....	1.00	6.58	10.00
Sulphate of Ammonia.....	....	20.56	....
Nitrate of Soda.....	....	14.81	....
Dried Ground Blood.....	....	12.95	....
Acme Top Dresser.....	....	7.40	3.00
Sulphate of Potash.....	....	....	48.00
Muriate of Potash.....	....	....	48.00
High Grade German Kainit 16 Per Cent.....	....	....	16.00
Genuine German Kainit.....	....	....	12.00

Ashepool Fertilizer Co., Charleston, S. C.—

High Grade Ashepool Dissolved Phosphate...	16.00	....	....
High Grade Ashepool Acid Phosphate.....	14.00	....	....
High Grade Ashepool XXXX Acid Phosphate.	14.00	....	....
High Grade Eutaw Acid Phosphate.....	14.00	....	....
Standard Ashepool XXX Acid Phosphate....	13.00	....	....
Standard Carolina Acid Phosphate.....	13.00	....	....
Standard Circle Bone.....	13.00	....	....
H. G. Ashepool Bone and Potash.....	12.00	....	2.00
Standard Ashepool Acid Phosphate and Potash.	12.00	....	1.00
Standard Eutaw Acid Phosphate and Potash.	12.00	....	1.00
Standard Ashepool Dissolved Bone.....	12.00	....	....
Standard Eutaw XX Acid Phosphate.....	12.00	....	....
Standard Coomassie Acid Phosphate.....	12.00	....	....
Standard Ashepool XX Acid Phosphate.....	12.00	....	....
Standard Ashepool Potash and Acid Phosphate	11.00	....	1.00
Standard Eutaw Potash Acid Phosphate....	11.00	....	1.00
Standard Palmetto Potash Acid Phosphate..	11.00	....	1.00
High Grade Ashepool Watermelon Guano....	10.00	3.29	5.00
H. G. Ashepool Cantaloupe Guano.....	10.00	2.46	10.00
H. G. Ashepool Fruit Fertilizer.....	10.00	1.65	6.00
H. G. Ashepool Golden Fertilizer.....	10.00	1.65	2.00
H. G. Eutaw Superpotash Acid Phosphate..	10.00	....	4.00
Standard Ashepool Potash Compound.....	10.00	....	3.00
Standard Enoree Acid Phosphate and Potash.	10.00	....	2.00
Standard Ashepool Wheat and Oats Specific..	9.50	1.65	1.00
Standard Ashepool Fertilizer.....	9.00	1.85	1.00
Standard Eutaw Fertilizer.....	9.00	1.85	1.00
Standard Ashepool Harrow Brand Raw Bone Superphosphate	9.00	1.65	2.00
Standard Eutaw XXX Guano.....	9.00	1.65	2.00
Standard Ashepool Guano.....	8.50	2.06	1.00
Standard Eutaw XX Guano.....	8.50	1.65	2.00
Standard Ashepool XX Guano.....	8.50	1.65	2.00
High Grade Ashepool Fruit Grower.....	8.00	3.91	2.75
High Grade Ashepool Perfection Guano.....	8.00	3.29	6.00
High Grade Ashepool Guano.....	8.00	3.29	4.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
High Grade Eutaw Special Cotton-seed Meal			
Guano	8.00	2.46	4.00
High Grade Eutaw X Golden Fertilizer.....	8.00	2.46	4.00
High Grade Ashepoo Cotton Fertilizer.....	8.00	2.46	3.00
High Grade Ashepoo XX Ammoniated Superphosphate	8.00	2.46	3.00
High Grade Ashepoo Bird and Fish Guano...	8.00	2.46	3.00
High Grade Ashepoo Meal Mixture.....	8.00	2.46	3.00
High Grade Ashepoo X Tobacco Fertilizer...	8.00	2.46	3.00
High Grade Ashepoo Golden Tobacco Producer	8.00	2.46	3.00
High Grade Carolina XXX Guano.....	8.00	2.46	3.00
H. G. Ashepoo Special C. S. M. Guano.....	8.00	2.46	2.00
High Grade Ashepoo Ammoniated Superphosphate	8.00	2.46	2.00
High Grade Ashepoo Farmers' Special.....	8.00	2.06	3.00
Standard Eutaw Circle Guano.....	8.00	2.06	2.00
Standard Ashepoo Circle Guano.....	8.00	2.06	2.00
Standard Coomassie Circle Fertilizer.....	8.00	1.65	2.00
Standard Carolina Guano.....	8.00	1.65	2.00
Standard P. D. Fertilizer.....	8.00	1.65	2.00
Standard Ashepoo XXX Guano.....	8.00	1.65	2.00
Standard Ashepoo XXX Meal Guano.....	8.00	1.65	2.00
Standard Ashepoo Special Fertilizer.....	8.00	1.65	2.00
Standard Bronwood Acid Phosphate.....	8.00	....	4.00
High Grade Ashepoo Truck Guano.....	7.00	4.12	5.00
H. G. Campbell Mixture.....	5.50	2.06	9.00
High Grade Ashepoo Vegetable Guano.....	5.00	4.12	5.00
High Grade Ashepoo Nitrogenous Top Dressing	3.00	7.00	2.00
Nitrate of Soda.....	....	14.81	....
Muriate of Potash.....	....	....	45.00
German Kainit .....	....	....	12.00

*The Armour Fertilizer Works, Atlanta, Chicago,
Wilmington and Greensboro—*

Bone Meal	Total	24.00	2.47	....
Armour's Raw Bone Meal.....	Total	22.00	3.70	....
17 Per Cent Acid Phosphate.....		17.00	....	....
16 Per Cent Acid Phosphate.....		16.00	....	....
15 Per Cent Acid Phosphate.....		15.00	....	....
Star Phosphate		14.00	....	....
13 Per Cent Acid Phosphate.....		13.00	....	....
Shield Brand		12.00	....	6.00
12 Per Cent Acid Phosphate.....		12.00	....	....
Sampson Corn Mixture.....		11.00	....	5.00
Fertilizer, No. 1045.....		10.00	3.30	5.00
Fertilizer, No. 1044.....		10.00	3.30	4.00
Fertilizer, No. 1033.....		10.00	2.47	3.00
Fertilizer, No. 1025.....		10.00	1.65	5.00
Fertilizer, No. 1023.....		10.00	1.65	3.00
Armour's Wheat Grower.....		10.00	1.65	2.00
Phosphate and B. Potash.....		10.00	....	6.00
Phosphoric Acid and Potash.....		10.00	....	5.00
Superphosphate and Potash.....		10.00	....	4.00
M. H. White Co.'s Special Corn Mixture.....		10.00	....	2.00
Phosphate and Potash, No. 1.....		10.00	....	2.00
Armour's Tobacco Champion.....		9.00	2.47	3.00
African Cotton Grower.....		9.00	2.47	3.00
Johnson's High Grade.....		9.00	2.05	5.00
Armour's Bright Tobacco Grower.....		9.00	1.65	3.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Bone and Dissolved Bone with Potash.....	9.00	1.65	3.00
Fertilizer, No. 913.....	9.00	.82	3.00
Armour's Phosphate and Potash.....	9.00	....	3.00
Standard Cotton Grower.....	8.50	1.65	2.00
Bone, Blood and Potash.....	8.00	4.11	7.00
Van Lindley's Special.....	8.00	4.11	2.00
Fertilizer, No. 846.....	8.00	3.30	6.00
Fertilizer, No. 844.....	8.00	3.30	4.00
Special Trucker	8.00	3.30	4.00
Sunrise Fertilizer, No. 844.....	8.00	3.30	4.00
All Soluble	8.00	2.88	4.00
Truck and Berry Special.....	8.00	2.47	10.00
Armour's 836 for Tobacco.....	8.00	2.47	6.00
Fertilizer, No. 836.....	8.00	2.47	6.00
Fertilizer, No. 834.....	8.00	2.47	4.00
Fertilizer, No. 833.....	8.00	2.47	3.00
Sunrise Fertilizer, No. 833.....	8.00	2.47	3.00
Underwood's Favorite	8.00	2.47	3.00
Cotton Special	8.00	2.47	3.00
Tobacco Special	8.00	2.47	3.00
Armour's 832-1/2	8.00	2.47	2.50
Carolina Cotton Grower.....	8.00	2.47	2.00
Berry King	8.00	2.05	4.00
Sunrise Cotton Grower.....	8.00	2.05	3.00
Gold Medal for Tobacco.....	8.00	2.05	3.00
Sweet Potato Special.....	8.00	2.05	3.00
Champion	8.00	2.05	2.50
King Cotton	8.00	2.05	2.00
High Grade Potato.....	8.00	1.65	10.00
Fruit and Root Crop Special.....	8.00	1.65	5.00
Stokes & Co. Tobacco Special.....	8.00	1.65	5.00
Shield Brand Fertilizer, No. 824.....	8.00	1.65	4.00
Carolina Cotton Special.....	8.00	1.65	3.00
Sunrise Tobacco Grower.....	8.00	1.65	3.00
Sunrise Standard	8.00	1.65	2.00
Slaughter House for Tobacco.....	8.00	1.65	2.00
Armour's Slaughter House Fertilizer.....	8.00	1.65	2.00
General	8.00	1.65	2.00
Shield Brand Fertilizer, No. 814.....	8.00	.82	4.00
Fertilizer, No. 813.....	8.00	.82	3.00
Phosphate and Potash, No. 2.....	8.00	....	5.00
Phosphate and Potash, No. 3.....	8.00	....	4.00
Fertilizer, No. 758.....	7.00	4.11	8.00
7 Per Cent Trucker.....	6.00	5.76	5.00
5 Per Cent Trucker.....	6.00	4.11	7.00
Manure Substitute	6.00	3.30	4.00
Armour's Velvet Leaf.....	6.00	2.47	7.00
10 Per Cent Trucker.....	5.00	8.24	3.00
Top Dresser	5.00	8.24	2.00
Armour's Top Dresser.....	4.00	6.18	2.50
Special Formula for Tobacco.....	4.00	3.30	5.00
Harvey's Special	4.00	3.30	4.00
10 Per Cent Tankage.....	2.00	8.24	....
Sulphate of Ammonia.....	....	20.00	....
Nitrate of Soda.....	....	14.81	....
Dried Blood .....	....	13.16	....
Armour's Top Dresser.....	....	7.83	4.00
Armour's Top Dresser.....	....	7.40	3.00
Sulphate of Potash.....	....	....	50.00
Muriate of Potash.....	....	....	50.00
Kainit .....	....	....	12.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
<i>American Fertilizer Co., Norfolk, Va.—</i>			
Bone Meal	22.50	3.71	....
American High Grade Acid Phosphate.....	16.00	....	....
High Grade Acid Phosphate.....	14.00	....	....
Eagle Brand Acid Phosphate.....	13.00	....	....
Double Extra Bone and Potash.....	12.00	....	5.00
Acid Phosphate	12.00	....	....
American Standard Cotton Grower.....	10.00	1.65	2.00
American Formula for Wheat and Corn.....	10.00	....	5.00
Double Dissolved Bone and Potash.....	10.00	....	4.00
Dissolved Bone and Potash for Corn and Wheat	10.00	....	2.00
Special Formula Guano for Yellow Leaf To- bacco	9.00	2.88	5.00
Pitt County Special Fertilizer.....	9.00	2.88	5.00
Capital King Cotton Grower.....	9.00	2.26	2.00
American Excelsior Guano.....	9.00	1.65	3.00
Bone and Peruvian Guano.....	9.00	1.65	2.00
American Bone Mixture.....	9.00	.83	2.00
Blood and Bone Compound.....	8.50	2.06	1.00
Peruvian Mixture	8.50	1.65	1.50
Peruvian Mixture Guano Especially Prepared for Sweet Potatoes.....	8.00	3.29	5.00
N. C. and S. C. Cotton Grower.....	8.00	3.29	4.00
American Eagle Guano.....	8.00	2.47	3.00
J. G. Miller & Co.'s Yellow Leaf Fertilizer...	8.00	2.47	3.00
American No. 1 Fertilizer.....	8.00	2.06	3.00
Bob White Fertilizer for Tobacco.....	8.00	2.06	2.50
A. L. Hannah's Special Formula.....	8.00	1.65	2.00
Bone and Peruvian Guano.....	8.00	1.65	2.00
American No. 2 Fertilizer.....	8.00	1.65	2.00
American Special Potash Mixture for Wheat.	8.00	....	4.00
10 Per Cent Ammoniated Guano.....	7.00	8.24	2.50
American 7-7-7 for Irish Potatoes.....	7.00	5.76	7.00
Standard 7 Per Cent Ammonia Guano.....	7.00	5.76	5.00
Special Potato Guano.....	7.00	4.12	7.00
American Irish Potato Grower.....	7.00	4.12	5.00
American Fish Scrap Guano.....	7.00	3.29	4.00
Stable Manure Substitute.....	7.00	2.47	4.00
Special Potato Manure.....	6.00	4.12	7.00
American Standard Top Dresser.....	4.00	8.24	4.00
American H. G. Top Dresser.....	....	7.41	3.00
Nitrate of Soda.....	....	14.83	....
Ground Fish Scrap.....	....	8.24	....
Muriate of Potash.....	....	....	49.00
Sulphate of Potash.....	....	....	48.00
Genuine German Kainit.....	....	....	12.00

Atlantic Fertilizer Co., Atlanta, Ga.—

Atlantic Acid Phosphate H. G.....	16.00		
Atlantic Acid Phosphate H. G.....	14.00	....	....
Atlantic Acid and Potash Mixture.....	11.00	....	5.00
Atlantic Cotton and Corn Fertilizer H. G....	10.00	3.29	4.00
Atlantic Cotton and Corn Fertilizer H. G. ...	10.00	2.47	3.00
Atlantic Cotton and Corn Fertilizer H. G. ...	10.00	1.65	2.00
Atlantic Cotton and Corn Fertilizer S. G.	10.00	.82	3.00
Atlantic Acid and Potash Mixture H. G.	10.00	....	4.00
Atlantic Acid and Potash Mixture S. G.	10.00	....	2.00
Atlantic Cotton and Corn Fertilizer H. G. ...	9.00	2.47	3.00
Atlantic Tobacco Fertilizer.....	9.00	2.26	2.00
Atlantic Cotton and Corn Fertilizer H. G. ...	9.00	1.65	3.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Atlantic Cotton-seed Meal Compound H. G. . .	9.00	1.65	3.00
Atlantic Truck Fertilizer H. G.	8.00	4.12	7.00
Atlantic Cotton and Corn Fertilizer H. G. . . .	8.00	3.29	4.00
Atlantic Tobacco Fertilizer High Grade. . . .	8.00	3.29	4.00
Atlantic Cotton and Corn Fertilizer H. G. . . .	8.00	2.47	5.00
Atlantic Tobacco Fertilizer.	8.00	2.47	3.00
Atlantic Cotton and Corn Fertilizer H. G. . . .	8.00	2.47	3.00
Atlantic Cotton-seed Meal Compound H. G. . .	8.00	2.47	3.00
Atlantic Tobacco Fertilizer.	8.00	2.26	2.00
Atlantic Tobacco Fertilizer.	8.00	2.06	3.00
Atlantic Cotton and Corn Fertilizer S. G. . . .	8.00	1.65	3.00
Atlantic Tobacco Fertilizer.	8.00	1.65	2.00
Atlantic Cotton and Corn Fertilizer S. G. . . .	8.00	1.65	2.00
Atlantic Grain Fertilizer Ammoniated S. G. . .	8.00	.82	4.00
Atlantic Acid and Potash Mixture H. G.	8.00	....	6.00
Atlantic Acid and Potash Mixture S. G.	8.00	....	4.00
Atlantic Truck Fertilizer	6.00	4.12	7.00
Atlantic Nitrate of Soda . . . . .	....	14.82	....
Atlantic Muriate of Potash . . . . .	....	....	50.00
Atlantic German Kainit . . . . .	....	....	12.00

*American Agricultural Chemical Co., Baltimore
and New York—*

A. A. C. Co.'s 16 Per Cent Superphosphate. . . .	16.00		
Canton Chemical 16 Per Cent Acid Phosphate. .	16.00	....	....
Detrick's 16 Per Cent Acid Phosphate.	16.00	....	....
Lazaretto 16 Per Cent Acid Phosphate.	16.00	....	....
Zell's 16 Per Cent Acid Phosphate.	16.00	....	....
Lazaretto 14 Per Cent Acid Phosphate.	14.00	....	....
Canton Chemical 14 Per Cent Acid Phosphate. .	14.00	....	....
Detrick's XXtra Acid Phosphate.	14.00	....	....
Zell's 14 Per Cent Acid Phosphate.	14.00	....	....
Zell's 13 Per Cent Acid Phosphate.	13.00	....	....
Detrick's H. G. Bone and Potash.	12.00	....	5.00
Zell's H. G. Bone and Potash.	12.00	....	5.00
Young's Melon Fertilizer	10.00	2.47	10.00
Champion Cotton Fertilizer	10.00	2.47	3.00
Zell's H. G. Bone and Potash.	10.00	....	4.00
Detrick's H. G. Bone and Potash.	10.00	....	4.00
Canton Chemical Soluble Phosphate and Potash	10.00	....	4.00
Lazaretto H. G. Alkaline Bone.	10.00	....	4.00
Zell's Bone and Potash.	10.00	....	2.00
Lazaretto Alkaline Bone	10.00	....	2.00
Detrick's Bone and Potash.	10.00	....	2.00
Canton Chemical Soluble Phosphate and Potash	10.00	....	2.00
A. A. C. Co.'s Top Notch Special.	9.00	2.47	7.00
A. A. C. Co.'s Special Tobacco Fertilizer. . . .	9.00	2.47	3.00
A. A. C. Co.'s High Grade C. S. M. Compound. .	9.00	2.26	2.00
Productive Cotton and Peanut Grower.	9.00	2.26	2.00
Zell's Royal High Grade Fertilizer.	9.00	2.06	2.00
Detrick's Superior Animal Bone Fertilizer. . . .	9.00	1.85	4.00
Canton Chemical Animal Bone Fertilizer. . . .	9.00	1.85	4.00
Zell's Victoria Animal Bone Compound.	9.00	1.85	4.00
Lazaretto Retriever Animal Bone Fertilizer. . .	9.00	1.85	4.00
Zell's Empire Cotton Compound	9.00	1.65	3.00
A. A. C. Co.'s Harvest Queen.	9.00	1.65	2.00
Gold Dust Guano	9.00	1.65	2.00
Zell's Hustler Phosphate	9.00	.82	3.00
Pacific Guano for Tobacco.	8.50	2.47	2.50

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Reese's Potato and Truck Special.....	8.00	3.29	7.00
Zell's Popular Tobacco Manure.....	8.00	3.29	4.00
Detrick's Kangaroo Komplete Kompound Spe- cial High Grade	8.00	3.29	4.00
Lazaretto Carolina Cotton Food.....	8.00	3.29	4.00
A. A. C. Co.'s Palmetto C. S. M. Compound...	8.00	3.29	4.00
Canton Chemical Bono Tobacco Fertilizer...	8.00	3.29	4.00
Zell's Economizer Cotton Food.....	8.00	3.29	4.00
A. A. C. Co.'s Excelsior Compound for Tobacco	8.00	2.47	5.00
Detrick's Gold Eagle Cotton Comp.	8.00	2.47	4.00
Detrick's Kangaroo Komplete Kompound for Tobacco	8.00	2.47	4.00
Lazaretto King of the Harvest.....	8.00	2.47	4.00
Zell's Tobacco Fertilizer	8.00	2.47	4.00
Canton Chemical Homestead Protector.....	8.00	2.47	4.00
Canton Chemical Gladiator Cotton Fertilizer.	8.00	2.47	3.00
A. A. C. Co.'s Eureka Cotton-seed Meal Com- pound	8.00	2.47	3.00
Detrick's Special Tobacco Fertilizer.....	8.00	2.47	3.00
Canton Chemical Baker's Tobacco Fertilizer..	8.00	2.47	3.00
Canton Chemical Superior High Grade Fer- tilizer	8.00	2.47	3.00
Detrick's Victory Cotton Fertilizer.....	8.00	2.47	3.00
Detrick's Kangaroo Komplete Kompound Bright Tobacco Grower.....	8.00	2.47	3.00
Detrick's Kangaroo Komplete Kompound for Cotton	8.00	2.47	3.00
Zell's Bright Tobacco Grower.....	8.00	2.47	3.00
Zell's Reliance High Grade Manure.....	8.00	2.47	3.00
Lazaretto New Rival Cotton Fertilizer.....	8.00	2.47	3.00
Lazaretto Special Tobacco and Potato Fertil- izer	8.00	2.47	3.00
Lazaretto Challenge Fertilizer	8.00	2.47	3.00
Lazaretto Carolina Tobacco Fertilizer.....	8.00	2.47	3.00
Canton Chemical CCC Special Compound....	8.00	2.06	6.00
Zell's "Square Deal" for Tobacco	8.00	2.06	3.00
Lazaretto Climax Plant Food.....	8.00	2.06	3.00
Slingluff's British Mixture	8.00	2.06	2.50
Detrick's Kangaroo Komplete Kompound....	8.00	1.65	3.00
Savage Son & Co.'s Brand Purity Guano....	8.00	1.65	2.00
Dawson's Crop Maker	8.00	1.65	2.00
Triumph Soluble Guano	8.00	1.65	2.00
Canton Chemical Baker's Fish Guano.....	8.00	1.65	2.00
Canton Chemical Game Guano.....	8.00	1.65	2.00
Detrick's Royal Crop Grower.....	8.00	1.65	2.00
Detrick's Fish Mixture	8.00	1.65	2.00
Lazaretto Crop Grower	8.00	1.65	2.00
Zell's Special Compound for Tobacco.....	8.00	1.65	2.00
Zell's Calvert Guano	8.00	1.65	2.00
Zell's Fish Guano	8.00	1.65	2.00
Reese's Pacific Guano	8.00	1.65	2.00
The A. A. C. Co. Fidelity Grain Grower.....	8.00	.82	4.00
Lazaretto Peanut Grower	8.00	.82	4.00
A. A. C. Co.'s Regal Crop Grower.....	8.00	.82	3.00
A. A. C. Co.'s Palmetto Alkaline Phosphate...	8.00	....	4.00
Lazaretto Early Trucker	7.00	4.11	5.00
A. A. C. Co.'s Blood, Bone and Fish Compound	7.00	3.29	5.00
Lazaretto Truckers' Favorite	6.00	5.76	5.00
Lazaretto Empire Trucker	6.00	4.11	7.00
A. A. C. Co.'s Nitrate of Soda.....	....	15.00	....

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
A. A. C. Co.'s Baltimore Top Dresser.....		7.41	3.00
A. A. C. Co.'s Muriate of Potash.....			49.00
A. A. C. Co.'s Genuine German Kainit.....			12.00

American Agricultural Chemical Co., Farmers Fertilizer Works, Spartanburg, S. C.—

Red Rooster Acid Phosphate.....	16.00	....	....
Red Rooster Acid Phosphate.....	14.00	....	....
Red Rooster Bone and Potash.....	13.00	....	6.00
Red Rooster Bone and Potash.....	12.00	....	6.00
Red Rooster Fertilizer	10.00	3.30	4.00
Red Rooster Truck Guano.....	10.00	3.30	4.00
Red Rooster Fertilizer	10.00	2.47	3.00
Red Rooster Blood, Bone and Potash.....	10.00	2.47	2.00
Red Rooster Fertilizer	10.00	2.00	4.00
Red Rooster Money Maker.....	10.00	1.85	3.00
Red Rooster Blood, Bone and Potash Fertilizer	10.00	1.65	8.00
Red Rooster Cotton Grower.....	10.00	1.65	3.00
Red Rooster Fertilizer	10.00	1.65	2.00
Red Rooster Fertilizer	10.00	1.65	2.00
Red Rooster Grain Grower.....	10.00	.82	5.00
Red Rooster Bone and Potash.....	10.00	....	6.00
Red Rooster Bone and Potash.....	10.00	....	4.00
Red Rooster Bone and Potash.....	10.00	....	2.00
Red Rooster Fertilizer	9.00	2.47	3.00
Red Rooster Fertilizer	9.00	2.47	2.00
Red Rooster Blood and Bone.....	9.00	1.65	3.00
Red Rooster Beats All Fertilizer.....	9.00	1.65	2.00
Red Rooster Fertilizer	8.00	4.10	7.00
Red Rooster Fertilizer	8.00	3.30	8.00
Red Rooster Fertilizer	8.00	3.30	4.00
Red Rooster Truck Guano	8.00	3.30	4.00
Red Rooster Farmers' Favorite Fertilizer....	8.00	2.47	3.00
Red Rooster Fertilizer	8.00	2.05	1.00
Red Rooster Fertilizer	8.00	1.65	10.00
Red Rooster Corn Grower.....	8.00	1.65	5.00
Red Rooster Special Corn Mixture.....	8.00	1.65	4.00
Red Rooster Fertilizer	8.00	1.65	2.00
Red Rooster Bone and Potash.....	8.00	....	4.00
Red Rooster Potato Fertilizer.....	7.00	3.30	5.00
Red Rooster Special Garden Grower.....	7.00	2.47	4.00
Red Rooster Lawn Grower.....	7.00	2.47	4.00
Red Rooster	6.00	4.00	8.00
Red Rooster Top Dresser	5.00	5.75	3.00

American Agricultural Chemical Co., Dixie Guano Branch, Spartanburg, S. C.—

Dixie Acid Phosphate	16.00	....	....
Dixie Acid Phosphate	14.00	....	....
Dixie Bone and Potash.....	13.00	....	6.00
Dixie Fertilizer	10.00	3.30	4.00
Dixie Fertilizer	10.00	2.47	3.00
Dixie Blood, Bone and Potash.....	10.00	2.47	2.00
Dixie Cotton Grower	10.00	1.65	3.00
Dixie Fertilizer	10.00	1.65	2.00
Dixie Grain Grower	10.00	.82	5.00
Dixie Bone and Potash.....	10.00	....	4.00
Dixie Fertilizer	9.00	2.47	3.00
Dixie Fertilizer	9.00	2.47	2.00
Dixie Blood and Bone.....	9.00	1.65	3.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Dixie Fertilizer	9.00	1.65	2.00
Dixie Fertilizer	8.00	4.10	7.00
Dixie Fertilizer	8.00	4.10	7.00
Dixie Fertilizer	8.00	3.30	4.00
Dixie Fertilizer	8.00	2.47	3.00
Dixie Fertilizer	8.00	2.05	1.00
Dixie Fertilizer	8.00	1.65	10.00
Dixie Fertilizer	8.00	1.65	10.00
Dixie Special Corn Mixture.....	8.00	1.65	4.00
Dixie Fertilizer	8.00	1.65	2.00
Dixie Bone and Potash	8.00	....	4.00
Dixie Lawn Grower	7.00	2.47	4.00
Dixie Special Garden Grower.....	7.00	2.47	4.00
Dixie Top Dresser	5.00	5.75	3.00

*American Agricultural Chemical Co., Homestead
Fertilizer Branch, Spartanburg, S. C.—*

Homestead Acid Phosphate	16.00	....	....
Homestead Acid Phosphate	14.00	....	....
Homestead Bone and Potash.....	13.00	....	6.00
Homestead Fertilizer	10.00	3.30	4.00
Homestead Fertilizer	10.00	2.47	3.00
Homestead Fertilizer	10.00	2.47	3.00
Homestead Fertilizer	10.00	2.47	2.00
Homestead Blood, Bone and Potash.....	10.00	2.47	2.00
Homestead Cotton Grower	10.00	1.65	3.00
Homestead Fertilizer	10.00	1.65	2.00
Homestead Bone and Potash.....	10.00	....	4.00
Homestead Fertilizer	9.00	2.47	3.00
Homestead Fertilizer	9.00	2.47	2.00
Homestead Fertilizer	9.00	1.65	3.00
Homestead Blood and Bone.....	9.00	1.65	3.00
Homestead Fertilizer	9.00	1.65	2.00
Homestead Fertilizer	8.00	4.10	7.00
Homestead Fertilizer	8.00	3.30	4.00
Homestead Fertilizer	8.00	2.47	3.00
Homestead Fertilizer	8.00	2.05	1.00
Homestead Special Corn Mixture.....	8.00	1.65	4.00
Homestead Fertilizer	8.00	1.65	4.00
Homestead Fertilizer	8.00	1.65	2.00
Homestead Bone and Potash.....	8.00	....	4.00
Homestead Fertilizer	7.00	2.47	4.00
Homestead Special Garden Grower.....	7.00	2.47	4.00
Homestead Lawn Grower	7.00	2.47	4.00
Homestead Fertilizer	5.00	5.75	3.00
Homestead Top Dresser	5.00	5.75	3.00

A. D. Adair and McCarty Bros., Atlanta, Ga.—

Adair's High Grade Dissolved Bone, No. 16..	16.00	....	....
A. and M. 15-4	15.00	....	4.00
A. and M. 13-4	13.00	....	4.00
McCarty's Potash Formula, No. 5.....	12.00	....	5.00
McCarty's Potash Formula, No. 4.....	12.00	....	4.00
McCarty's Potash Formula	12.00	....	2.00
Adair's Dissolved Bone	12.00	....	....
David Harum Extra High Grade Blood Guano.	10.00	3.30	4.00
Adair's H. G. Blood and Bone Guano.....	10.00	2.47	3.00
Special Wheat Compound	10.00	1.65	4.00
Special Corn Compound	10.00	1.65	4.00
Special Vegetable Compound	10.00	1.65	4.00
Special Potato Compound	10.00	1.65	4.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Special Cotton Compound	10.00	1.65	4.00
Special Tomato Compound	10.00	1.65	4.00
Adair's Soluble Pacific Guano.....	10.00	1.65	2.00
McCarty's High Grade Cotton Grower C. S. M.	10.00	1.65	2.00
McCarty's High Grade Corn Grower C. S. M.	10.00	1.65	2.00
Old Time Fish Scrap Guano.....	10.00	1.65	2.00
McCarty's Wheat Special	10.00	.82	3.00
McCarty's Corn Special	10.00	.82	3.00
McCarty's Cotton Special	10.00	.82	3.00
Adair's H. G. Potash Comp., No. 10.....	10.00	....	10.00
Adair's Wheat and Corn Grower, No. 8.....	10.00	....	8.00
H. G. Potash Compound, No. 8.....	10.00	....	8.00
H. G. Potash Compound, No. 6.....	10.00	....	6.00
Adair's Wheat and Corn Grower, No. 6.....	10.00	....	6.00
Adair's Wheat and Corn Grower, No. 5.....	10.00	....	5.00
H. G. Potash Compound, No. 5.....	10.00	....	5.00
High Grade Potash Compound.....	10.00	....	4.00
Adair's Wheat and Corn Grower.....	10.00	....	4.00
Adair's Formula	10.00	....	2.00
Dixie High Grade Soil Food.....	9.00	1.65	3.00
Adair's Blood, Bone and Tankage Guano....	9.00	.82	2.00
Special Corn Grower	8.00	1.65	6.00
Special Wheat Grower	8.00	1.65	6.00
Special Potato Grower	8.00	1.65	6.00
Special Vegetable Grower	8.00	1.65	6.00
Standard Corn Grower	8.00	1.65	2.00
Planter's Soluble Fertilizer	8.00	1.65	2.00
Adair's Ammoniated Dissolved Bone.....	8.00	1.65	2.00
Golden Grain Compound	8.00	.82	3.00
Adair's Special Potash Mixture, No. 6.....	8.00	....	6.00
Adair's Special Potash Mixture, No. 5.....	8.00	....	5.00
Adair's Special Potash Mixture.....	8.00	....	4.00
Nitrate of Soda.....	....	15.00	....
Muriate of Potash .....	....	....	50.00

Asheville Packing Co., Asheville, N. C.—

Asheville Packing Co.'s Pure Bone Meal, Total	18.00	2.47	
Asheville Packing Co.'s H. G. Phosphoric Acid	16.00	....	....
Asheville Packing Co.'s Standard Phosphoric Acid	14.00	....	....
Asheville Packing Co.'s Extra H. G. Potash Mixture	13.00	....	4.00
Asheville Packing Co.'s Standard Phosphoric Acid	12.00	....	....
Asheville Packing Co.'s Celebrated Tankage, Total	10.00	4.12	....
Asheville Packing Co.'s Extra H. G. Fertilizer.	10.00	3.30	4.00
Asheville Packing Co.'s Blood and Bone.....	10.00	2.47	3.00
Asheville Packing Co.'s H. G. Cotton Special.	10.00	1.65	4.00
Asheville Packing Co.'s High Grade Biltmore Wheat Grower	10.00	1.65	3.00
Asheville Packing Co.'s H. G. Wheat, Corn and Oat Special	10.00	1.65	2.00
Asheville Packing Co.'s Standard Bone and Potash	10.00	.82	1.00
Asheville Packing Co.'s Superior Potato and Wheat Fertilizer	10.00	....	6.00
Asheville Packing Co.'s Special Potash Mixture	10.00	....	4.00
Asheville Packing Co.'s XXX Wheat Grower.	10.00	....	2.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Asheville Packing Co.'s Standard Potato Fer- tilizer	9.00	.82	2.00
Asheville Packing Co.'s H. G. Vegetable Spe- cial	8.00	4.12	5.00
Asheville Packing Co.'s Corn and Vegetable Special	8.00	2.47	3.00
Asheville Packing Co.'s Special Tobacco and Vegetable Fertilizer	8.00	2.47	3.00
Asheville Packing Co.'s Fruit Special.....	8.00	1.65	6.00
Asheville Packing Co.'s Potato Special.....	8.00	1.65	6.00
Asheville Packing Co.'s Excelsior Potato Fer- tilizer	8.00	1.65	4.00
Asheville Packing Co.'s Complete Fertilizer..	8.00	1.65	2.00
Asheville Packing Co.'s Standard Corn and Wheat	8.00	.82	3.00
Asheville Packing Co.'s Special Bone and Pot- ash	8.00	....	4.00
Asheville Packing Co.'s Extra H. G. Potato Special	5.00	5.77	9.00
Asheville Packing Co.'s H. G. Muriate of Pot- ash .....	....	....	50.00
<i>J. A. Benton, Ruffin, N. C.—</i>			
Benton's N. C. Bright Top Fertilizer.....	9.00	1.65	2.00
<i>Baugh & Sons Co., Phila., Pa., and Norfolk, Va.—</i>			
Baugh's Raw Bone Meal, Warranted Pure, Total	21.50	3.70	....
Baugh's 16 Per Cent Acid Phosphate.....	16.00	....	....
Baugh's Pure Bone and Muriate of Potash Mixture	15.00	2.47	5.00
Baugh's High Grade Acid Phosphate.....	14.00	....	....
Baugh's Pure Dissolved Animal Bones.....	13.00	2.06	....
Baugh's 12 and 5 Phosphate and Potash.....	12.00	....	5.00
Baugh's High Grade Cotton and Truck Guano.	10.00	1.65	2.00
Baugh's 10 and 8 Phosphate and Potash.....	10.00	....	8.00
Baugh's 10 and 4 Phosphate and Potash Mix- ture	10.00	....	4.00
Baugh's Soluble Alkaline Superphosphate...	10.00	....	2.00
Baugh's H. G. Potato Grower.....	8.00	3.30	10.00
Baugh's Fish, Bone and Potash.....	8.00	3.30	4.00
Baugh's Yucatan Special Tobacco Guano....	8.00	3.30	4.00
Baugh's Fruit and Berry Guano.....	8.00	2.47	10.00
Baugh's Special Tobacco Guano.....	8.00	2.47	5.00
Baugh's Grand Rapids High Grade Guano....	8.00	2.47	3.00
Baugh's Sweet Potato Guano for Sweet Pota- toes, Peas and Melons.....	8.00	2.47	3.00
Baugh's High Grade Tobacco Guano.....	8.00	2.47	3.00
Baugh's Complete Animal Base Fertilizer...	8.00	1.65	5.00
Baugh's Fish Mixture	8.00	1.65	2.00
Baugh's Animal Base and Potash Compound for All Crops.....	8.00	1.65	2.00
Baugh's Wheat Fertilizer for Wheat and Grass	8.00	1.65	2.00
Baugh's Southern States Excelsior Guano....	8.00	1.00	3.00
Glover's Special Potato Guano.....	7.00	3.30	8.00
Baugh's Southern States Guano for Bright Tobacco	7.00	2.88	7.00
Baugh's Potato and Truck Special.....	7.00	2.88	7.00
Baugh's Strawberry Mixture.....	7.00	2.47	5.00
Baugh's Fine Ground Fish.....Total	6.87	8.23	....
Gilliam's Special Potato Guano.....	6.00	5.76	6.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Baugh's 7 Per Cent Potato Guano.....	6.00	5.76	5.00
Baugh's Peruvian Guano Substitute for Potatoes for All Vegetables.....	6.00	4.12	7.00
Gilliam's 5-6-7	6.00	4.12	7.00
Baugh's Farmers' Friend Guano.....	6.00	4.12	5.00
Baugh's New Process 10 Per Cent Guano....	5.00	8.23	2.50
Baugh's Special Potato Manure.....	5.00	1.65	10.00
H. G. Tankage	4.00	7.40	....
Baugh's Wrapper Leaf Brand for Seed Leaf Tobacco	3.50	3.30	5.00
Sulphate of Ammonia .....	....	20.57	....
Nitrate of Soda .....	....	15.04	....
Fine Ground Dried Blood.....	....	13.17	....
Baugh's Soluble Top Dresser for All Crops...	....	8.23	3.00
Muriate of Potash .....	....	....	48.00
High Grade Sulphate of Potash.....	....	....	48.00
Genuine German Kainit .....	....	....	12.00

S. T. Beveridge & Co., Richmond, Va.—

Beveridge's Raw Ground Bone Meal....Total	20.00	3.70	....
Beveridge's Thomas or Basic Slag.....Total	16.00	....	...

Bertie Cotton Oil Company, Aulander, N. C.—

Acid Phosphate	16.00	....	....
Bertie's High Grade Guano.....	8.00	4.13	5.00
Bertie's Meal Mixture	8.00	3.30	4.00
Bertie's Tobacco Grower	8.00	2.47	5.00
Bertie's Ideal Cotton Grower.....	8.00	2.47	3.00
Bertie's Special Compound	8.00	1.65	2.00
Bertie's Corn Mixture	7.00	2.47	2.00
Peanut Grower	7.00	1.65	5.00
Bertie's Peanut Special	7.00	.82	4.00
Mitchell's Top Dresser	3.00	6.60	3.00
Tar Heel Top Dresser.....	2.00	8.25	5.00
Nitrate of Soda .....	....	15.00	....
Sulphate of Potash .....	....	....	52.00
Muriate of Potash .....	....	....	50.00
Kainit .....	....	....	12.00

Beta Fertilizer Co., Beta, N. C.—

Beta Grass and Grain	10.00		2.00
Beta H. G. Potato	8.00	3.30	10.00
Beta Potato and Truck.....	8.00	3.30	7.00
Beta Cotton Grower.....	8.00	2.50	3.00
Beta Corn Grower	8.00	1.65	2.00

Baltimore Fertilizer Co., Baltimore, Md.—

Honest Acid Phosphate	16.00	....	....
Honest Acid Phosphate	14.00	....	....
Honest Bone and Potash	10.00	....	2.00
Honest Sweet Potato Grower	8.00	2.40	4.00
Honest Cotton Grower	8.00	2.40	3.00
Honest Ammoniated Bone	8.00	1.60	2.00
Honest Dixie Trucker	6.00	4.00	7.00
Honest Trucker	6.00	4.00	5.00

Bowker Fertilizer Co., Baltimore, Md., and Boston, Mass.—

16 Per Cent Dissolved Bone Phosphate.....	16.00	....	....
Bowker's Soluble Phosphate	14.00	....	....

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Golden Harvest Fertilizer	12.00	....	5.00
Imperial Alkaline Phosphate.....	10.00	....	4.00
Superphosphate with Potash for Grass and Grain	10.00	....	2.00
Bowker's H. G. C. S. M. Mixture.....	9.00	2.26	2.00
Animal Bone Fertilizer	9.00	1.85	4.00
Sure Crop Cotton-seed Meal Compound.....	8.00	3.29	4.00
J. C. Taylor's Fancy Wrapper Tobacco Fer- tilizer	8.00	2.88	7.00
Bowker's Red Oak Tobacco Fertilizer.....	8.00	2.47	7.00
Tyson's Special for Tobacco.....	8.00	2.47	5.00
Bowker's White Star Compound.....	8.00	2.47	4.00
Tobacco Fertilizer	8.00	2.47	3.00
Eureka Cotton Compound	8.00	2.47	3.00
Fish Guano	8.00	1.65	3.00
Excelsior C. S. M. Mixture	8.00	1.65	2.00
Empire Standard	8.00	1.65	2.00
Corn and Grain Grower	8.00	.82	4.00
Southern Special Compound	7.00	3.29	5.00
Bowker's 7 Per Cent Potato Guano.....	6.00	5.76	5.00
H. G. Top Dresser.....	....	7.41	3.00

Blackstone Guano Co., Inc., Blackstone, Va.—

Clover Leaf 16 Per Cent Phosphate.....	16.00	....	....
Bone and Phosphate Half and Half.....	15.00	1.65	....
B. G. Co. Acid Phosphate.....	14.00	....	....
Clover Leaf for Grain.....	13.00	1.03	1.00
Dissolved Bone	10.00	1.03	1.00
B. G. Co., Inc., Bone and Potash.....	10.00	....	4.00
B. G. Co. Bone and Potash.....	10.00	....	2.00
Blackstone Special for Tobacco.....	9.00	2.47	3.00
Old Bellefonte	8.00	3.30	2.00
Clover Leaf for Tobacco	8.00	2.47	3.00
Tobacco Special	8.00	2.47	3.00
Wrapper Brand	8.00	2.47	3.00
Jim Crow for Tobacco.....	8.00	2.47	3.00
Bellefonte	8.00	2.47	2.00
Hard Cash for Tobacco	8.00	2.06	2.00
Carolina Special for Tobacco.....	8.00	1.65	4.00
Standard Guano	8.00	1.65	2.00
Red Letter for Tobacco.....	8.00	1.65	2.00
Alliance for Tobacco.....	8.00	1.65	2.00
Leader for Tobacco	8.00	1.65	2.00
Peanut Special	8.00	1.03	6.00
Material for Special Order.....	....	4.95	....

Banner Fertilizer Co., Benson, N. C.—

Banner High Grade Acid Phosphate.....	16.00		
Banner Bone and Potash	10.00	....	5.00
Banner Cotton Grower	8.00	2.47	5.00
Banner High Grade Tobacco Guano.....	8.00	2.47	5.00
Banner Tobacco Guano.....	8.00	2.47	3.00
Banner Guano	8.00	2.47	3.00
Banner Corn Fertilizer	8.00	1.65	5.00
Banner Top Notch Guano.....	8.00	1.65	2.00
Nitrate Soda .....	....	18.00	....
Banner Dried Blood.....	....	13.20	....
Banner Ground Tankage.....	....	8.25	....
Banner Muriate Potash.....	....	....	48.00
Banner German Kainit .....	....	....	12.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
<i>C. J. Burton Guano Co., Baltimore, Md.—</i>			
Burton's 16 Per Cent Acid Phosphate.....	16.00	....	....
Burton's 14 Per Cent Acid Phosphate.....	14.00	....	....
Burton's Alkaline	10.00	....	4.00
Burton's Potash Mixture	10.00	....	2.00
Burton's High Grade Tobacco.....	8.00	3.29	4.00
Burton's Best	8.00	2.47	3.00
Tobacco Queen	8.00	2.47	3.00
Burton's High Grade	8.00	2.06	3.00
Burton's Butcher Bone	8.00	1.65	2.00

Bradley Fertilizer Co., Charleston, S. C.—

High Grade Bradley's Dissolved Phosphate...	16.00	....	....
High Grade Bradley's Acid Phosphate.....	14.00	....	....
Standard Bradley's XXX Acid Phosphate....	13.00	....	....
Standard Bradley's Acid Phosphate.....	12.00	....	....
Standard Bradley's Palmetto Acid Phosphate.	12.00	....	....
H. G. Bradley's Selected Guano.....	10.00	1.65	4.00
High Grade Bradley's Potash Acid Phosphate.	10.00	....	4.00
Standard Bradley's Wheat Grower	10.00	....	2.00
Standard Bradley's Bone and Potash.....	10.00	....	2.00
Standard B. D. Sea Fowl Guano.....	9.00	1.85	1.00
Standard Bradley's Ammoniated Dissolved Bone	9.00	1.85	1.00
Standard Bradley's Patent Superphosphate...	9.00	1.85	1.00
Standard Eagle Ammoniated Bone Superphos- phate	9.00	1.85	1.00
High Grade Bradley's Circle Guano.....	8.00	3.29	4.00
High Grade Bradley's Guano.....	8.00	2.46	3.00
Standard Bradley's Cereal Guano	8.00	1.65	2.00
Standard Bradley's X Guano.....	8.00	1.65	2.00
German Kainit .....	....	....	12.00

Baltimore Fertilizer Co., Baltimore, Md.—

Honest 4-8-5	8.00	3.20	5.00
Kainit .....	....	....	12.00

The Bryant Fertilizer Co., Alexandria, Va.—

Bryant's Bone Meal	Total	22.50	3.71	....
Bryant's Acid Phosphate		17.00	....	....
Bryant's Acid Phosphate		16.00	....	....
Bryant's S. C. Dissolved Bone.....		14.00	....	....
Bryant's H. G. Wheat Mixture.....		12.00	....	6.00
Parrish-Godwin's Dissolved Bone with Potash		12.00	....	4.00
Bryant's Bone and Potash		10.00	....	4.00
Bryant's Bone and Potash Mixture.....		10.00	....	2.00
Bryant's "Challenge" Highest Grade Tobacco Mixture		9.00	2.47	3.00
Bryant's Meal Mixture		9.00	2.47	3.00
Bryant's Special Cotton-seed Meal Fertilizer..		9.00	2.26	2.00
Bryant's Bone Mixture for Tobacco.....		9.00	2.06	2.00
Carolina Wheat and Grain Guano		9.00	.82	3.00
Farmers' Mixture		8.75	1.85	4.00
Bryant's H. G. Guano.....		8.00	3.29	4.00
Bryant's H. G. Meal Fertilizer.....		8.00	3.29	4.00
Bryant's H. G. Tobacco Fertilizer.....		8.00	3.29	4.00
Bryant's Favorite C. S. M. Guano.....		8.00	2.47	3.00
Bryant's H. G. Fertilizer.....		8.00	2.47	3.00
Bryant's "Victor" Tobacco Fertilizer.....		8.00	2.47	3.00
Bryant's Choice C. S. M. 3 Per Cent Mixture.		8.00	2.47	2.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Bryant's Tobacco Fertilizer	8.00	2.06	3.00
Bryant's "Otter" Special Tobacco Fertilizer..	8.00	2.06	3.00
Bryant's Cotton and Corn Fertilizer.....	8.00	2.06	2.00
Bryant's Special Fertilizer for Tobacco	8.00	2.06	2.00
Bryant's Cotton Grower	8.00	1.65	2.00
Bryant's Special Fertilizer	8.00	1.65	2.00
Bryant's Cotton-seed Meal Guano.....	8.00	1.65	2.00
Bryant's "Potomac" Bone Special for Tobacco	8.00	1.65	2.00
Bryant's Special Formula for Grain and Grass	8.00	.82	4.00
Bryant's Wheat Mixture	8.00	....	4.00
Bryant's Truck Grower	7.00	5.76	7.00
Bryant's Fish Scrap Guano	7.00	3.29	4.00
Bryant's Carolina Top Dresser	6.00	5.76	5.00
Bryant's High Grade Top Dresser.....	4.00	8.23	4.00
Bryant's Top Dresser	4.00	6.17	2.50
Bryant's Special Top Dresser.....	2.00	5.76	2.50
Nitrate of Soda .....	....	14.82	....
Blood .....	....	13.15	....
H. G. Tankage .....	....	8.25	....
Fish Scrap .....	....	8.24	....
Bryant's Carolina Special Top Dresser.....	....	7.41	3.00
Muriate of Potash .....	....	....	48.00
Sulphate of Potash .....	....	....	48.00
Genuine German Kainit .....	....	....	12.00

The Berkley Chemical Co., Norfolk, Va.—

Pure Ground Bone	Total	20.00	3.70	....
Resolute Acid Phosphate		16.00	....	....
Berkley Acid Phosphate		14.00	....	....
Berkley 12-5 Bone and Potash.....		12.00	....	5.00
Berkley Bone and Potash Mixture.....		11.00	....	2.00
Berkley Plant Food		10.00	....	4.00
Laurel Potash Mixture		10.00	....	2.00
Monitor Animal Bone Fertilizer		9.00	1.85	4.00
Select Crop Grower		8.50	2.06	2.50
Victory Special Crop Grower.....		8.00	3.29	4.00
Berkley Tobacco Guano		8.00	2.47	3.00
Advance Crop Grower		8.00	2.47	3.00
Brandon Superphosphate		8.00	1.65	2.00
Long Leaf Tobacco Grower.....		8.00	1.65	2.00
Berkley Peanut and Grain Grower.....		8.00	1.00	4.00
Superior Bone and Potash.....		8.00	....	4.00
Mascot Truck Guano		7.00	4.11	5.00
Royal Truck Grower		6.00	5.76	5.00
The Leader of the World.....		5.00	3.29	5.00
Berkley Top Dresser		4.00	8.23	2.00
Special Top Dresser .....		....	7.41	3.00
Nitrate of Soda .....		....	15.00	....
Dry Ground Fish .....		....	8.23	....
Muriate of Potash .....		....	....	49.00
Sulphate of Potash .....		....	....	48.00
Genuine German Kainit .....		....	....	12.00

Bragaw Fertilizer Co., Washington, N. C.—

16 Per Cent Acid	16.00	....	....
Palmetto Acid Phosphate	14.00	....	....
Long Acre Bone Phosphate.....	14.00	....	....
Farmers' Union Meal Mixture.....	9.00	2.26	2.00
Beaufort County Guano	8.00	2.47	3.00
Havana Tobacco Guano	8.00	2.47	3.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Tuckahoe Tobacco Guano	8.00	2.06	3.00
Old Reliable Premium Guano	8.00	1.65	2.00
Tar Heel Guano	8.00	1.65	2.00
Pamlico Trucker	7.00	4.12	5.00
7-5-5 Truck Guano	7.00	4.12	5.00
Riverview Potato Grower	6.00	5.76	5.00
Chocowinity Special Tobacco Guano.....	5.00	3.29	6.00
Sunrise Tobacco Guano	4.00	2.47	5.00
Genuine German Kainit .....	....	....	12.00

Conestee Chemical Co., Wilmington, N. C.—

16 Per Cent Acid Phosphate.....	16.00	....	....
Conestee High Grade Acid Phosphate.....	14.00	....	....
Conestee Acid Phosphate.....	13.00	....	....
Conestee Bone and Potash.....	12.00	....	6.00
Conestee Bone and Potash.....	12.00	....	5.00
Conestee Bone and Potash.....	12.00	....	4.00
Conestee Bone and Potash.....	12.00	....	3.00
Conestee Bone and Potash.....	12.00	....	2.00
Conestee Bone and Potash.....	11.00	....	6.00
Conestee Bone and Potash.....	11.00	....	5.00
Conestee Bone and Potash.....	11.00	....	4.00
Conestee Bone and Potash.....	11.00	....	3.00
Conestee Bone and Potash.....	11.00	....	2.00
Conestee Bone and Potash.....	10.00	....	6.00
Conestee Bone and Potash.....	10.00	....	5.00
Conestee Bone and Potash.....	10.00	....	4.00
Conestee Bone and Potash.....	10.00	....	3.00
Conestee Bone and Potash.....	10.00	....	2.00
Adams' Special Fertilizer	9.00	2.47	3.00
Conestee Cotton Grower	9.00	2.27	2.00
Conestee Special Fertilizer for Cotton.....	8.00	4.12	7.00
Conestee Melon Grower	8.00	4.12	7.00
Conestee O. K. Fertilizer for Tobacco.....	8.00	3.30	4.00
Conestee P. D. Q. Fertilizer.....	8.00	3.30	4.00
Conestee "O. K." Fertilizer.....	8.00	3.30	4.00
Conestee P. D. Q. Fertilizer for Tobacco.....	8.00	3.30	4.00
Conestee Plumb Good Fertilizer.....	8.00	2.47	4.00
Conestee Crop Grower for Tobacco	8.00	2.47	4.00
Conestee Fish Scrap Guano for Tobacco.....	8.00	2.47	3.00
Conestee S-3-3 C. S. M. Guano.....	8.00	2.47	3.00
Conestee S-3-3 C. S. M. Guano for Tobacco...	8.00	2.47	3.00
Conestee Fish Scrap Guano.....	8.00	2.47	3.00
Conestee Special Fertilizer	8.00	2.47	3.00
Conestee Special Tobacco Fertilizer.....	8.00	2.47	3.00
Conestee Fertilizer for Tobacco.....	8.00	2.47	2.50
Conestee Fertilizer	8.00	2.47	2.50
Conestee Crop Grower	8.00	2.06	3.00
Conestee Tobacco Grower	8.00	2.06	3.00
Conestee Complete Fertilizer.....	8.00	2.06	2.00
Conestee Special Grain Fertilizer.....	8.00	1.65	2.00
Conestee Standard Guano for Tobacco.....	8.00	1.65	2.00
Conestee Standard Guano.....	8.00	1.65	2.00
Cotton-seed Meal Guano for Tobacco.....	8.00	1.65	2.00
Cotton-seed Meal Guano.....	8.00	1.65	2.00
Conestee Bone and Potash	8.00	....	6.00
Conestee Bone and Potash.....	8.00	....	5.00
Conestee Bone and Potash.....	8.00	....	4.00
Conestee Root Crop Guano.....	7.00	4.12	7.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Conestee Root Crop Guano.....	7.00	4.12	7.00
Conestee Standard Truck Guano.....	7.00	4.12	5.00
Conestee Standard Truck Guano.....	7.00	4.12	5.00
Conestee H. G. Guano.....	6.00	4.94	8.00
Conestee High Grade Guano.....	6.00	4.94	8.00
Conestee Truck Grower.....	6.00	3.30	8.00
Conestee Truck Grower.....	6.00	3.30	8.00
Conestee Corn Guano.....	6.00	2.47	3.00
Dried Fish Scrap.....	4.50	8.02	....
Conestee Special Top Dresser.....	4.00	8.25	4.00
Conestee Top Dresser.....	....	7.40	3.00
Sulphate of Ammonia.....	....	20.56	....
Nitrate of Soda.....	....	14.81	....
Muriate of Potash.....	....	....	48.00
Sulphate of Potash.....	....	....	48.00
H. G. German Kainit 16 Per Cent.....	....	....	16.00
Genuine German Kainit.....	....	....	12.00

Columbia Guano Co., Norfolk, Va.—

Pure Raw Bone Meal.....Total	21.50	3.71	....
Columbia High Grade 16 Per Cent Acid Phos- phate	16.00	....	....
Columbia 14 Per Cent Acid Phosphate.....	14.00	....	....
Columbia Dissolved Bone.....	13.00	....	....
Columbia 12 and 6 Bone and Potash Mixture.	12.00	....	6.00
Columbia Acid Phosphate.....	12.00	....	....
Columbia 11 and 5 Bone and Potash Mixture.	11.00	....	5.00
Columbia 10½ and 1½ Bone and Potash Mix- ture	10.50	....	1.50
Columbia 10 and 5 Bone and Potash Mixture.	10.00	....	5.00
Columbia 10 and 4 Bone and Potash Mixture.	10.00	....	4.00
Columbia Bone and Potash for Grain.....	10.00	....	3.00
Columbia Bone and Potash Mixture.....	10.00	....	2.00
Columbia C. S. M. Special.....	9.00	2.27	2.00
Parrish's Special	9.00	2.06	5.00
Roanoke Ammoniated Guano.....	9.00	1.65	3.00
Carolina Soluble Guano.....	9.00	1.65	1.00
Columbia Grain Guano.....	9.00	.82	3.00
Columbia Special 1-9-2 Guano.....	9.00	.82	2.00
Tobacco King	8.00	3.30	5.00
Pelican Ammoniated Guano.....	8.00	3.30	4.00
Columbia Special Truck Guano.....	8.00	3.30	4.00
Trojan Tobacco Guano.....	8.00	3.30	4.00
Columbia Special 4-8-3.....	8.00	3.30	3.00
Columbia 8-3-4 Special Guano.....	8.00	2.47	4.00
Olympia Cotton Guano.....	8.00	2.47	3.00
Hyco Tobacco Guano.....	8.00	2.47	3.00
Our Best Meal Guano.....	8.00	2.47	3.00
Royal Tobacco Fertilizer.....	8.00	2.06	3.00
Columbia Special Tobacco Guano.....	8.00	2.06	2.00
Yelverton Bros.' Plant Food for Tobacco....	8.00	2.00	5.00
Columbia 8-2-5 Tobacco Special.....	8.00	1.65	5.00
Columbia Fish Phosphate and Potash.....	8.00	1.65	3.00
Columbia Soluble Guano for Tobacco.....	8.00	1.65	2.00
Columbia Special Wheat Fertilizer.....	8.00	1.65	2.00
Columbia Soluble Guano.....	8.00	1.65	2.00
Spinola Peanut Grower.....	8.00	1.02	4.00
Columbia 8 and 4 Bone and Potash Mixture..	8.00	....	4.00
Columbia Special 7 Per Cent Truck Guano...	7.00	5.77	7.00
Columbia Potato Guano.....	7.00	4.12	5.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Crown Brand Peanut Guano.....	7.00	....	5.00
Columbia Side Dresser.....	4.00	8.22	4.00
Columbia Ground Fish Scrap.....	4.00	8.22	....
Columbia Special Top Dresser.....	4.00	6.18	2.50
Nitrate of Soda.....	....	15.22	....
Columbia Top Dresser.....	....	7.42	3.00
Sulphate of Potash.....	....	....	48.00
Muriate of Potash.....	....	....	48.00
Genuine German Kainit.....	....	....	12.00

*Cumberland Phosphate Co., Portland, Me., and
Charleston, S. C.—*

Standard Cumberland Bone Superphosphate of Lime	9.00	1.85	1.00
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The Coe-Mortimer Co., Charleston, S. C.—

Gen. Key—Tree Brand Thomas Phosphate, Total	18.00		
Gen. Key—Tree Brand Thomas Phosphate, Total	17.50	....	....
Coe-Mortimer Co.'s Dissolved Bone.....	16.00	....	....
Coe-Mortimer Co.'s Dissolved Bone.....	14.00	....	....
Coe-Mortimer Co.'s Level Best.....	10.00	3.29	4.00
Coe-Mortimer Co.'s Progressive Farmer.....	10.00	2.47	3.00
Coe-Mortimer Co.'s Bone and Potash.....	10.00	....	4.00
Coe-Mortimer Co.'s Bone and Potash.....	10.00	....	2.00
Coe-Mortimer Co.'s Corn Club.....	9.25	2.05	2.00
Carolina Special	9.00	2.47	3.00
Coe-Mortimer Co.'s Excelsior.....	9.00	2.05	4.00
Coe-Mortimer Co.'s M. H. G.....	9.00	1.65	3.00
Knickerbocker Standard	9.00	1.65	2.00
Coe-Mortimer Co.'s Tar Heel.....	9.00	.82	3.00
Coe-Mortimer Co.'s Special Formula.....	8.50	1.65	2.00
Harper's Tobacco Guano	8.00	4.11	9.00
E. Frank Co.'s Extra High Grade.....	8.00	4.11	7.00
Marcos Guano	8.00	3.29	4.00
C. M. C.'s Tobacco Grower.....	8.00	3.28	4.00
Coe-Mortimer Co.'s Tobacco Fertilizer.....	8.00	2.47	6.00
Coe-Mortimer Co.'s Tobacco Fertilizer.....	8.00	2.47	5.00
Coe-Mortimer Co.'s Tobacco Fertilizer.....	8.00	2.47	4.00
C. M. C.'s Tobacco Special.....	8.00	2.47	3.00
Darlington Guano	8.00	2.47	3.00
Coe-Mortimer Co.'s Cotton and Corn.....	8.00	2.05	3.00
Coe-Mortimer Co.'s Straight Goods.....	8.00	1.65	3.00
Mortimer's High Grade.....	7.00	4.11	5.00
Imported Ground Fish.....	6.87	9.27	11.25
High Grade Tankage.....	6.80	9.65	11.75
High Grade Tankage.....	6.80	7.62	9.25
Coe-Mortimer Co.'s Top Dresser.....	4.00	6.17	2.50
Nitrate of Soda.....	....	14.99	18.23
Nitrate of Soda.....	....	14.83	....
H. G. Dried Blood.....	....	14.00	17.00
H. G. Dried Blood.....	....	13.59	16.50
Muriate of Potash.....	....	....	49.00
Sulphate of Potash.....	....	....	49.00
Muriate Mixture .....	....	....	20.00
Genuine German Kainit.....	....	....	12.00

Cooper Guano Co., Wilmington, N. C.—

Cooper's 16 Per Cent Acid Phosphate.....	16.00		
Cooper's 14 Per Cent Acid Phosphate.....	14.00	....	....

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Cooper's Grain Producer.....	10.00	....	4.00
Cooper's Grain Grower.....	10.00	....	2.00
Cooper's Recorder	9.00	1.65	2.00
Cooper's Kite	8.00	4.11	7.00
Cooper High Grade Tobacco Special.....	8.00	3.29	4.00
Cooper's Helmar	8.00	3.29	4.00
Cooper's Horto	8.00	3.29	4.00
Cooper's Tobacco Special.....	8.00	3.00	7.50
Cooper's Chadbourn Trucker.....	8.00	2.47	10.00
Cooper's Lenox	8.00	2.47	3.00
Cooper's Sunset C. S. M.....	8.00	2.47	3.00
Cooper's Clifford	8.00	2.47	3.00
Cooper's Swamp Fox.....	8.00	2.47	2.50
Cooper's Bunker Hill.....	8.00	2.06	3.00
Cooper's Crusoe	8.00	2.06	2.00
Cooper's Potato	8.00	1.65	10.00
Cooper's Bald Head Island.....	8.00	1.65	2.00
Cooper's Reward	8.00	1.65	2.00
Cooper's Waccamaw	8.00	1.65	2.00
Cooper's Sterling Complete.....	8.00	1.65	2.00
Cooper's Peanut Bouncer.....	8.00	.82	4.00
Cooper's Finis	7.00	4.11	5.00
Cooper's Top Dresser.....	4.00	10.00	4.00
Cooper's Evergreen Top Dresser.....	....	7.41	3.00
Fish Scrap .....	....	10.00	....
Kainit .....	....	....	12.00

Craven Chemical Co., New Bern, N. C.—

Panama 16 Per Cent Phosphate.....	16.00	....	....
Jewel Acid Phosphate.....	14.00	....	....
Turkey Trot Bone and Potash.....	12.00	....	6.00
Herring's Bone and Potash.....	12.00	....	5.00
Craven H. G. Bone and Potash.....	12.00	....	4.00
Foy's High Grade Bone and Potash Mixture.	10.00	....	6.00
Craven Grain Compound.....	10.00	....	4.00
Trent Bone and Potash.....	10.00	....	2.00
Halifax Guano	9.00	2.47	3.00
Prolix 9-2-3 Special Guano.....	9.00	1.65	3.00
Hanover Standard Guano.....	8.00	3.29	4.00
Currituck Sweet Potato Guano.....	8.00	2.47	6.00
Craven Chemical Co.'s Standard Tobacco Guano	8.00	2.47	6.00
Hart's Special Tobacco Grower.....	8.00	2.47	3.00
Duplin Tobacco Guano.....	8.00	2.47	3.00
Gaston High Grade Fertilizer.....	8.00	2.47	3.00
C. E. Foy High Grade Guano.....	8.00	2.47	3.00
Marvel Great Crop Grower.....	8.00	2.06	3.00
Elite Cotton Guano.....	8.00	1.65	2.00
Pantego Potato Guano.....	7.00	4.12	7.00
Neuse Truck Grower.....	6.00	4.94	6.00
Craven Chemical Co.'s Truck Guano. 5-10-2½.	5.00	8.24	2.50
Craven Chemical Co.'s Top Dresser A.....	4.00	8.24	4.00
Craven Chemical Co.'s Top Dresser B.....	4.00	6.18	2.50
Craven Chemical Co.'s Top Dresser C.....	....	7.41	3.00
Genuine German Kainit.....	....	....	12.00

William H. Camp, Petersburg, Va.—

Bone Meal	Total	22.50	3.80	....
Camp's Acid Phosphate.....		16.00	....	....
Camp's Acid Phosphate.....		14.00	....	....

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Camp's Shepherd Brand Bone and Potash....	10.00	....	4.00
Camp's Yellow Head Chemicals.....	8.00	2.87	7.50
Camp's Special for Tobacco.....	8.00	2.46	3.00
Camp's Red Head Chemicals.....	8.00	2.25	2.00
Camp's Lion and Monkey.....	8.00	1.65	2.00
Cat and Rat Peanut Grower.....	8.00	1.00	4.00
Victory Corn Grower.....	8.00	1.00	2.00
Camp's Shepherd Brand Bone and Potash....	8.00	....	5.00
Camp's Green Head Chemicals.....	7.00	6.15	10.00
Camp's Above All.....	6.00	5.75	5.00
Camp's Fertilizer	6.00	4.95	6.00
Nitrate of Soda.....	....	14.75	....
Muriate of Potash.....	....	....	48.00
German Kainit .....	....	....	12.00

Clayton Oil Mill, Clayton, N. C.

C. O. M. 16 Per Cent Acid Phosphate.....	16.00		
C. O. M. High Grade Bone and Potash.....	12.00	....	5.00
C. O. M. Wheat Compound.....	10.00	2.05	4.50
C. O. M. Bone and Potash.....	10.00	....	5.00
Austin's Special	9.00	2.47	3.00
Way Side Special.....	9.00	1.65	4.00
C. W. H. Special.....	8.00	4.10	5.00
C. O. M. Cotton Grower.....	8.00	3.30	4.00
Clayton Guano	8.00	2.47	3.00
Clayton Special Tobacco Grower.....	8.00	2.47	3.00
Planters' Favorite	8.00	2.47	3.00
Cotton Queen	8.00	1.65	2.00
Summer Queen	8.00	1.65	2.00
C. O. M. Top Dresser.....	3.00	7.75	2.00
Perfection Top Dresser.....	....	9.85	4.00
H. and W. D. Climax Top Dresser.....	....	12.75	....
C. O. M. German Kainit.....	....	....	12.00

Chatham Oil and Fertilizer Co., Pittsboro, N. C.—

C. O. & F. Co. Acid Phosphate.....	16.00		
C. O. & F. Co. Acid Phosphate.....	14.00	....	....
C. O. & F. Co. Bone and Potash.....	10.00	....	5.00
C. O. & F. Co. Bone and Potash.....	10.00	....	2.00
Chatham Corn Grower.....	9.00	1.23	3.00
High Land Tobacco Grower.....	8.00	2.47	3.00
Pride of Chatham.....	8.00	2.47	3.00
London's Special	8.00	2.47	3.00
Chatham Cotton Grower.....	8.00	1.65	2.00
C. O. & F. Co. German Kainit.....	....	....	12.00

*Cotton States Fertilizer Works, Atlanta, Ga.,
Savannah, Ga.—*

Cotton States Potash Acid H. G.....	16.00		
Cotton States Potash Acid H. G.....	14.00	....	....
Cotton States Potash Acid H. G.....	13.00	....	4.00
Cotton States Cotton and Corn Fertilizer H. G.	10.00	3.29	4.00
Cotton States Cotton and Corn Fertilizer H. G.	10.00	2.47	3.00
Cotton States Cotton and Corn Fertilizer H. G.	10.00	1.65	4.00
Cotton States Cotton and Corn Fertilizer H. G.	10.00	1.65	2.00
Cotton States Cotton-seed Meal Compound H. G.	10.00	1.65	2.00
Cotton States Cotton and Corn Fertilizer S. G.	10.00	.82	3.00
Cotton States Potash Acid H. G.....	10.00	....	4.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Cotton States Potash Acid S. G.....	10.00	....	2.00
Cotton States Cotton and Corn Fertilizer H. G.	9.00	2.47	3.00
Cotton States Cotton and Corn Fertilizer H. G.	9.00	1.65	3.00
Cotton States Cotton and Corn Fertilizer H. G.	8.00	1.65	5.00
Cotton States Cotton and Corn Fertilizer S. G.	8.00	1.65	2.00
Cotton States Potash Acid S. G.....	8.00	....	4.00
Cotton States Nitrate of Soda.....	....	14.82	....
Cotton States Muriate of Potash.....	....	....	50.00
Cotton States German Kainit.....	....	....	12.00

Catawba Fertilizer Co., Lancaster, S. C.—

Catawba High Grade Acid Phosphate.....	16.00		
Catawba High Grade Acid Phosphate.....	14.00	....	....
Catawba Acid and Potash.....	12.00	....	5.00
Catawba Acid and Potash.....	12.00	....	4.00
Catawba Special	10.00	3.29	4.00
Catawba Farmers' King.....	10.00	1.65	5.00
Catawba Climax	10.00	1.65	2.00
Catawba Preference	10.00	1.65	2.00
Catawba Grain King.....	10.00	.82	4.00
Catawba Acid and Potash.....	10.00	....	4.00
Catawba Acid and Potash.....	10.00	....	2.00
Catawba Gold Medal.....	9.00	2.47	7.00
Catawba Farmers' Special.....	9.00	2.47	2.00
Catawba Farmers' Union.....	9.00	1.85	4.00
Catawba Economizer	9.00	1.65	2.00
Catawba Dixie	8.85	1.65	2.00
Catawba Old Hickory.....	8.00	3.29	6.00
Catawba Reliable	8.00	3.29	4.00
Catawba Electric	8.00	3.29	4.00
Catawba Farmers' Choice.....	8.00	2.47	5.00
Catawba Red Rose.....	8.00	2.47	3.00
Catawba Peerless	8.00	2.47	3.00
Catawba Red Star.....	8.00	2.47	3.00
Catawba Champion	8.00	2.05	3.00
Catawba Standard	8.00	2.05	2.00
Catawba Eclipse	8.00	1.65	2.00
Catawba Acid and Potash.....	8.00	....	4.00
Catawba Cotton Producer.....	6.00	4.93	5.00
Catawba Top Dresser.....	4.00	6.16	2.50
Catawba Superior	4.00	5.75	7.00
Catawba Excelsior	4.00	5.75	4.00
Catawba Nitrate of Soda.....	....	15.00	....
Catawba Muriate of Potash.....	....	....	48.00
Catawba Kainit .....	....	....	12.00

Cowell, Swann & McCotter Co., Bayboro, N. C.—

16 Per Cent Acid Phosphate.....	16.00	....	....
Bone Phosphate	14.00	....	....
Standard Cotton Grower.....	8.00	3.30	3.00
Champion Guano	8.00	2.47	3.00
Cowell's Great Tobacco Grower.....	8.00	2.47	3.00
Special Tobacco Guano.....	8.00	2.47	3.00
Special Cotton Guano.....	8.00	2.47	3.00
Quick Grower Guano.....	8.00	2.06	3.00
Rust Proof Cotton Guano.....	8.00	1.65	3.00
Crop Guano	8.00	1.65	2.00
Great Cabbage and Potato Guano.....	7.00	5.77	7.00
High Grade Truck Guano.....	7.00	4.12	5.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
<i>Carolina Union Fertilizer Co., Norfolk, Va.—</i>			
Carolina Union Raw Bone Meal.....Total	21.00	3.71	....
Carolina Union 16 Per Cent.....	16.00	....	....
Carolina Union 14 Per Cent.....	14.00	....	....
Carolina Union 10-5.....	10.00	....	5.00
Carolina Union 10-4.....	10.00	....	4.00
Carolina Union 10-2.....	10.00	....	2.00
Carolina Union 2¾-9-2.....	9.00	2.26	2.00
Carolina Union 2¼-9-4 Guano.....	9.00	1.85	4.00
Carolina Union 4-8-6.....	8.00	3.30	6.00
Carolina Union 4-8-4.....	8.00	3.30	4.00
Carolina Union 3-8-10.....	8.00	2.47	10.00
Carolina Union 3-8-5.....	8.00	2.47	5.00
Carolina Union 3-8-3.....	8.00	2.47	3.00
Carolina Union 2½-8-3.....	8.00	2.06	3.00
Carolina Union 2-8-4.....	8.00	1.65	4.00
Carolina Union 2-8-2.....	8.00	1.65	2.00
Carolina Union 8-4.....	8.00	....	4.00
Carolina Union 5-7-5.....	7.00	4.12	5.00
Carolina Union 4-6-4.....	6.00	3.30	4.00
Nitrate of Soda.....	....	14.85	....
Muriate of Potash.....	....	....	50.00
Genuine German Kainit.....	....	....	12.00

Chickamauga Fertilizer Works, Atlanta, Ga.—

Chickamauga High Grade Dissolved Bone, No. 16	16.00		
Chickamauga High Grade Dissolved Bone...	14.00	....	....
Chickamauga 13-4	13.00	....	4.00
Chickamauga Potash Special, No. 4	12.00	....	4.00
Chickamauga Potash Special.....	12.00	....	2.00
Chickamauga Dissolved Bone.....	12.00	....	....
Chickamauga Very Best Extra H. G. Guano..	10.00	3.30	4.00
Ben Hur H. G. Blood and Bone Guano.....	10.00	2.47	3.00
Special Potato Compound.....	10.00	1.65	4.00
Special Wheat Compound.....	10.00	1.65	4.00
Special Vegetable Compound.....	10.00	1.65	4.00
Special Corn Compound.....	10.00	1.65	4.00
Chickamauga High Grade Fertilizer.....	10.00	1.65	2.00
Chickamauga High Grade Plant Food.....	10.00	1.65	2.00
Chickamauga Fish Scrap Guano.....	10.00	1.65	2.00
Chickamauga Wheat Special.....	10.00	.82	3.00
Chickamauga Corn Special.....	10.00	.82	3.00
Chickamauga Cotton Special.....	10.00	.82	3.00
Old Glory Mixture.....	10.00	.82	1.00
Chickamauga Wheat and Corn Grower, No. 8.	10.00	....	8.00
Chickamauga Wheat and Corn Grower, No. 6.	10.00	....	6.00
Chickamauga Wheat and Corn Grower, No. 5.	10.00	....	5.00
Chickamauga Wheat and Corn Grower.....	10.00	....	4.00
Chickamauga Bone and Potash.....	10.00	....	2.00
Chickamauga Blood, Bone and Tankage Guano	9.00	.82	2.00
Special Potato Grower.....	8.00	1.65	6.00
Special Wheat Grower.....	8.00	1.65	6.00
Special Vegetable Grower.....	8.00	1.65	6.00
Special Corn Grower.....	8.00	1.65	6.00
Chickamauga Complete Fertilizer.....	8.00	1.65	2.00
Chickamauga Standard Corn Grower.....	8.00	1.65	2.00
Chickamauga Standard Wheat Grower.....	8.00	1.65	2.00
Georgia Home Guano.....	8.00	1.65	2.00
No. 3 Bone, Tankage and Potash Mixture....	8.00	.82	3.00
Chickamauga Alkaline Bone, No. 6.....	8.00	....	6.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Chickamauga Alkaline Bone, No. 5.....	8.00	....	5.00
Chickamauga Alkaline Bone.....	8.00	....	4.00
Nitrate of Soda.....	....	15.00	....
Muriate of Potash.....	....	....	50.00

Canton Fertilizer Co., Canton, Ga.—

Dissolved Bone	16.00	....	....
Dissolved Bone	14.00	....	....
R. T. Jones Extra H. G.....	10.00	2.47	3.00
Elberta Special	10.00	2.06	7.00
North Georgia High Grade.....	10.00	2.06	3.00
Ten Two Four.....	10.00	1.65	4.00
Southern King High Grade.....	10.00	1.65	2.00
Fish High Grade.....	10.00	1.65	2.00
Orange High Grade.....	10.00	1.65	2.00
Jomco High Grade.....	10.00	1.65	2.00
Quickstep Wheat and Grain Grower.....	10.00	.82	3.00
Special Potash Mixture.....	10.00	....	4.00
Jomco Standard Grade.....	8.00	1.65	2.00
Dissolved Bone and Potash.....	8.00	....	4.00
Jones' Premium Special.....	7.50	4.00	5.50
Nitrate of Soda.....	....	15.00	....
Muriate of Potash.....	....	....	48.00

The Chesapeake Chemical Co., Baltimore, Md.—

C. C. Co.'s Dissolved Phosphate.....	16.00	....	....
C. C. Co.'s Dissolved Phosphate.....	14.00	....	....
C. C. Co.'s Reliable Phosphate.....	10.00	....	4.00
C. C. Co.'s Celebrated Mixture.....	10.00	....	2.00
C. C. Co.'s Rapid Trucker.....	8.00	3.28	7.00
C. C. Co.'s High Grade Guano.....	8.00	3.28	4.00
C. C. Co.'s Excelsior Fertilizer.....	8.00	2.46	4.00
C. C. Co.'s Fish Guano.....	8.00	2.46	3.00
C. C. Co.'s Ammoniated Phosphate.....	8.00	1.64	3.00
C. C. Co.'s National Crop Grower.....	8.00	1.64	2.00
C. C. Co.'s Keystone Phosphate.....	7.00	3.28	5.00
C. C. Co.'s Potato Compound.....	6.00	4.10	5.00
C. C. Co.'s Prolific Top Dresser.....	....	7.51	3.50
C. C. Co.'s German Kainit.....	....	....	12.40

Combahce Fertilizer Co., Charleston, S. C.—

C. F. Co. Dissolved Bone.....	16.00		
C. F. Co. Dissolved Bone.....	14.00	....	....
C. F. Co. Pure Dissolved Bone.....	13.00	....	....
C. F. Co. Melon Fertilizer.....	10.00	3.30	5.00
C. F. Co. Cantaloupe Fertilizer.....	10.00	2.47	10.00
Fish and Blood.....	9.00	1.65	3.00
C. F. Co. K. M. S.....	8.00	3.30	4.00
C. F. Co. H. G. Cotton Fertilizer.....	8.00	2.47	3.00
Fish Mixture	8.00	2.47	3.00
C. F. Co. Special Mixture.....	8.00	2.06	1.50
C. F. Co. Cotton and Corn Compound.....	8.00	1.65	2.00
Nitrate of Soda.....	....	14.84	....
Muriate of Potash.....	....	....	48.00
Kainit .....	....	....	12.00

*Caraleigh Phosphate and Fertilizer Works,
Raleigh, N. C.—*

Raw Bone Meal	Total	20.00	3.70	....
16 Per Cent Acid Phosphate.....		16.00	....	....

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Climax Dissolved Bone	14.00	....	....
Sterling Acid Phosphate	13.00	....	....
Staple Acid Phosphate	12.00	....	....
Horne & Son's High Grade Bone and Potash.	11.00	....	5.00
Special Bone and Potash Mixture.....	10.00	....	4.00
Morris & Scarboro's Special Bone and Potash	10.00	....	3.00
Electric Bone and Potash Mixture.....	10.00	....	2.00
Pacific Tobacco and Cotton Grower.....	9.00	2.26	2.00
Rhamkatte Special Tobacco Guano.....	8.00	3.30	6.00
Special S-4-4	8.00	3.30	4.00
Caraleigh Meal and Tankage Mixture.....	8.00	3.30	4.00
Horne's Best	8.00	2.47	3.00
Eclipse Ammoniated Guano	8.00	2.47	3.00
Planter's Pride	8.00	2.06	3.00
Caraleigh Special Tobacco Guano.....	8.00	2.06	3.00
Eli Ammoniated Fertilizer	8.00	1.65	2.00
Crown Ammoniated Guano	8.00	1.65	2.00
Comet Guano	8.00	.82	3.00
Buncombe Corn Grower	8.00	....	4.00
Buncombe Wheat Grower	8.00	....	4.00
Caraleigh Top Dresser	3.00	8.23	4.00
Nitrate of Soda .....	....	15.63	....
Kanona Tankage .....	....	9.04	....
Sulphate of Potash .....	....	....	50.00
Muriate of Potash .....	....	....	50.00
Genuine German Kainit .....	....	....	12.00

Central Phosphate Co., Mount Pleasant, Tenn.—

Tennessee Phosphate	Total	32.00	....	....
Tennessee Phosphate	Total	28.00	....	....

Cheraw Fertilizer Co., Cheraw, S. C.—

Cheraw Perfection Acid Phosphate.....	16.00		
Cheraw High Grade Acid Phosphate.....	14.00	....	....
Cheraw Standard Acid Phosphate.....	13.00	....	....
Farmers' Mixture	8.00	3.29	4.00
Cheraw Perfection	8.00	3.29	4.00
Cheraw Special	8.00	3.29	4.00
Cheraw High Grade	8.00	2.47	3.00
Cheraw Excelsior	8.00	2.47	3.00
Cheraw Fish Mixture	7.00	3.29	3.00
Cheraw Complete	7.00	2.47	4.00
Farmers' Special Mixture	6.00	2.47	2.50
Nitrate of Soda .....	....	14.80	....
Muriate of Potash.....	....	....	48.00
German Kainit .....	....	....	12.00

Congaree Fertilizer Co., Columbia, S. C.—

Superphosphate and Potash	10.00	....	2.00
Congaree Special Guano	8.00	3.00	4.00
Special Meal Mixture	8.00	3.00	3.00
Top Dresser	7.00	5.00	5.00
Congaree Special Guano	7.00	3.00	5.00
Top Dresser	4.00	7.50	2.50
Nitrate of Soda .....	....	18.00	....

Coweta Fertilizer Co., Norfolk, Va.—

Coweta 16 Per Cent Acid Phosphate.....	16.00	....	....
Coweta High Grade Acid Phosphate.....	14.00	....	....
Coweta Acid Phosphate	13.00	....	....

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Coweta Fish Guano	10.00	1.65	2.00
Coweta Standard Bone and Potash.....	10.00	....	4.00
Coweta Dissolved Bone and Potash.....	10.00	....	2.00
Coweta Animal Bone	8.00	3.29	4.00
Sea Bird Standard Guano.....	8.00	2.47	3.00
Coweta Perfection Tobacco Grower.....	8.00	2.47	3.00
Coweta Royal Guano	8.00	2.06	3.00
Coweta Beef, Blood and Bone.....	8.00	2.06	1.00
Coweta Success Guano	8.00	1.65	2.00
Coweta Special Bone and Potash.....	8.00	....	4.00
Coweta Standard Truck Guano.....	6.00	4.12	7.00
Coweta Top Dresser.....	4.00	8.25	4.00
Nitrate of Soda .....	....	14.83	....
Cotton-seed Meal .....	....	6.17	....
Muriate of Potash .....	....	....	49.00
Genuine German Kainit .....	....	....	12.00

Carolina Warehouse Co., Salisbury, N. C.—

Farmers' Union Ground Phosphate Rock, Total	28.00	....	....
Farmers' Union 21.5-4.5 Bone Meal.....Total	21.50	3.70	....
Farmers' Union 20-12 Bone and Potash.....	20.00	....	12.00
Farmers' Union 20-8 Bone and Potash.....	20.00	....	8.00
Thomas Phosphate (Anchor Brand)....Total	17.00	....	....
Farmers' Union 16 Per Cent Acid Phosphate.	16.00	....	....
Farmers' Union 14 Per Cent Acid Phosphate.	14.00	....	....
Farmers' Union Dissolved Animal Bone.....	13.00	2.06	....
Farmers' Union 13 Per Cent Acid Phosphate.	13.00	....	....
Farmers' Union 12-6 Bone and Potash.....	12.00	....	6.00
Farmers' Union 12-5 Bone and Potash.....	12.00	....	5.00
Farmers' Union 12-4 Bone and Potash.....	12.00	....	4.00
Farmers' Union 12-3 Bone and Potash.....	12.00	....	3.00
Farmers' Union 12 Per Cent Acid Phosphate.	12.00	....	....
Farmers' Union 10-4-4 Guano	10.00	3.29	4.00
Farmers' Union 10-3-3 Guano	10.00	2.47	3.00
Farmers' Union 10-2-2 Guano	10.00	1.65	2.00
Farmers' Union 10-6 Bone and Potash.....	10.00	....	6.00
Farmers' Union 10-5 Bone and Potash.....	10.00	....	5.00
Farmers' Union 11-5 Bone and Potash.....	10.00	....	5.00
Farmers' Union 10-4 Bone and Potash.....	10.00	....	4.00
Farmers' Union 10-3 Bone and Potash.....	10.00	....	3.00
Farmers' Union 10-2 Bone and Potash.....	10.00	....	2.00
Farmers' Union 9-3-3 Guano	9.00	2.47	3.00
Farmers' Union 9-2¾-2 Guano.....	9.00	2.26	2.00
Farmers' Union 9-2¼-4	9.00	1.85	4.00
Farmers' Union 9-2-3 Guano	9.00	1.65	3.00
Farmers' Union 9-1-3 Guano	9.00	.82	3.00
Farmers' Union 8-4½-7 Guano.....	8.00	3.71	7.00
Farmers' Union 8-4½-7 Tobacco Guano.....	8.00	3.71	7.00
Farmers' Union 8-4-6 Guano	8.00	3.29	6.00
Farmers' Union 8-4-6 Tobacco Guano	8.00	3.29	6.00
Farmers' Union 8-4-4 Guano	8.00	3.29	4.00
Farmers' Union 8-3-5 Tobacco Guano	8.00	2.47	5.00
Farmers' Union 8-3-5 Guano	8.00	2.47	5.00
Farmers' Union 8-3-3 Guano	8.00	2.47	3.00
Farmers' Union 8-3-3 Tobacco Guano	8.00	2.47	3.00
Farmers' Union 8-2.5-3 Guano	8.00	2.06	3.00
Farmers' Union 8-2.5-3 Tobacco Guano	8.00	2.06	3.00
Farmers' Union 8-2.5-2 Guano	8.00	2.06	2.00
Farmers' Union 8-2.5-2 Tobacco Guano	8.00	2.06	2.00
Farmers' Union 8-2-10 Guano	8.00	1.65	10.00
Farmers' Union 8-2-3 Guano	8.00	1.65	3.00

Name and Address of Manufacturer and Name of Brand.	Avall. Phos. Acid.	Nitrogen.	Potash.
Farmers' Union 8-2-2 Guano	8.00	1.65	2.00
Farmers' Union 8-2-2 Tobacco Guano	8.00	1.65	2.00
Farmers' Union 8-1-4 Guano	8.00	.82	4.00
Farmers' Union 8-1-3 Guano	8.00	.82	3.00
Farmers' Union 8-5 Bone and Potash.....	8.00	....	5.00
Farmers' Union 8-4 Bone and Potash.....	8.00	....	4.00
Farmers' Union 7-7-7 Guano	7.00	5.76	7.00
Farmers' Union 7-5-8 Guano	7.00	4.12	8.00
Farmers' Union 7-5-5 Guano	7.00	4.12	5.00
Farmers' Union 7-4-5 Guano	7.00	3.29	5.00
Farmers' Union 4-7.5-2 Top Dresser.....	4.00	6.17	2.00
Farmers' Union Tankage Total	2.00	8.24	....
Farmers' Union Nitrate of Soda .....	....	15.00	....
Farmers' Union Dried Blood .....	....	13.00	....
Farmers' Union Fish Scrap .....	....	8.24	....
Farmers' Union Carolite Top Dresser.....	....	7.40	3.00
Farmers' Union Muriate of Potash .....	....	....	50.00
Farmers' Union Sulphate of Potash.....	....	....	49.00
Farmers' Union 12 Per Cent Kainit.....	....	....	12.00

Contentnea Guano Co., Wilson, N. C.—

High Grade 16 Per Cent Acid.....	16.00	....	....
Contentnea 14 Per Cent Acid.....	14.00	....	....
Bartholomew's Cotton Special	10.00	2.47	7.00
"Corn Club" Special	10.00	.82	5.00
Bone and Potash Mixture, No. 3.....	10.00	....	5.00
Bone and Potash Mixture, No. 2.....	10.00	....	4.00
Bone and Potash Mixture, No. 1.....	10.00	....	2.00
Contentnea Cotton Formula.....	9.00	2.25	2.00
Bartholomew's Cotton Grower	9.00	1.85	5.00
8-4½-7 for Tobacco	8.00	3.70	7.00
8-4½-7 for Cotton	8.00	3.70	7.00
Climax High Grade	8.00	3.30	4.00
High Grade Tobacco Grower.....	8.00	2.90	5.00
Howard & Williams' Cotton Special	8.00	2.88	5.00
Government Formula, No. 1.....	8.00	2.47	10.00
Bartholomew's Tobacco Special	8.00	2.47	7.00
Government Formula, No. 2.....	8.00	2.47	7.00
Victor Fertilizer for Tobacco.....	8.00	2.47	5.00
Farmers' Favorite Formula	8.00	2.47	4.00
Pick Leaf Tobacco Fertilizer.....	8.00	2.47	3.00
Top Notch Fertilizer	8.00	2.47	3.00
Matchless Cotton Grower	8.00	2.47	3.00
Contentnea Cotton Grower	8.00	2.47	2.50
Cotton Special	8.00	2.05	5.00
Contentnea Tobacco Special	8.00	2.05	3.00
Bragg Cotton Grower	8.00	2.05	3.00
Blood and Bone Cotton Compound.....	8.00	1.65	2.00
Bragg Corn Grower	8.00	.82	5.00
Special Formula for Truck.....	7.00	4.06	7.00
High Grade Special	6.00	5.75	5.00
Contentnea Corn Special	5.00	1.65	5.00
High Grade Top Dresser.....	4.00	8.25	4.00
Special Top Dresser	4.00	6.60	4.00
Moore's Special	4.00	2.65	4.50
Contentnea Top Dresser	3.00	8.25	5.00
Nitrate of Soda .....	....	14.82	....
Muriate of Potash.....	....	....	50.00
Sulphate of Potash .....	....	....	50.00
Manure Salts .....	....	....	20.00
H. G. 16 Per Cent German Kainit.....	....	....	16.00
German Kainit .....	....	....	12.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
<i>C. E. Davis Packing Co., Reedville, Va.—</i>			
Upton's Trucker	8.00	4.12	5.00
Gilliam's 7 Per Cent Special	6.00	5.77	6.00
Upton's 7 Per Cent	6.00	5.77	5.00
Gilliam's Special 5 Per Cent.....	6.00	4.12	8.00
Upton's Special	6.00	4.12	7.00
<i>C. P. Dey, Beaufort, N. C.—</i>			
Ground Fish Scrap	7.00	8.23	....
<i>Dixie Guano Co., Durham, N. C.—</i>			
Dixie 16 Per Cent Acid Phosphate.....	16.00	....	....
Dixie 14 Per Cent Acid Phosphate.....	14.00	....	....
Dixie Champion for Wheat and Corn.....	10.50	....	1.50
Jeff Davis Special	9.00	2.26	2.00
Dixie Star Ammoniated	9.00	1.65	2.00
Dixie Corn Fertilizer	9.00	.82	3.00
Radium Brand Guano	8.00	3.28	5.00
Dixie Tobacco Fertilizer	8.00	2.46	3.00
Carolina Special Ammoniated	8.00	2.46	3.00
Sulky Plow Brand Guano	8.00	2.46	2.00
Battle's Blood and Bone Fertilizer.....	8.00	2.05	3.00
Niagara Soluble Bone	8.00	2.05	2.00
Dixie Cotton Fertilizer	8.00	1.65	2.00
Old Plantation Superphosphate	8.00	1.65	2.00
Nitrate of Soda .....	....	14.82	....
Muriate of Potash .....	....	....	48.00
Sulphate of Potash .....	....	....	48.00
Kainit .....	....	....	12.00
<i>The Dunn Oil Mill Co., Dunn, N. C.—</i>			
Uncle Zeb	9.50	2.75	5.00
Cape Fear Leader.....	8.00	4.00	4.00
Bull of the Field.....	8.00	3.00	4.00
Dunn Hustler	8.00	3.00	3.00
Sampson Cotton Grower	8.00	2.00	2.00
<i>Dixie Guano Co., Inc., Suffolk, Va.—</i>			
Dixie Acid Phosphate	16.00	....	....
Dixie Acid Phosphate	14.00	....	....
Dixie Goodluck Brand	12.00	1.00	6.00
Dixie Alkaline Bone and Potash.....	11.00	....	2.00
Dixie Monticello Brand	10.00	1.00	2.00
Dixie Alkaline Bone and Potash.....	10.00	....	4.00
Dixie Alkaline Bone and Potash.....	10.00	....	2.00
Dixie's Best	8.00	4.11	7.00
Dixie 8-4-4 Guano	8.00	3.29	4.00
Dixie Maximum Brand	8.00	2.47	4.00
Dixie High Grade	8.00	2.47	3.00
Dixie 8-2-5 Guano	8.00	1.65	5.00
Dixie Standard Guano	8.00	1.65	2.00
Dixie Bonus Brand	8.00	1.65	2.00
Dixie Jumbo Peanut Grower.....	8.00	1.00	4.00
Dixie Corn Grower	8.00	1.00	2.00
Dixie Bone and Potash.....	8.00	....	5.00
Dixie 5 Per Cent Truck.....	7.00	4.11	5.00
Dixie Potato Guano	6.00	5.75	5.00
Dixie 10 Per Cent Top Dresser.....	5.00	8.23	3.00
Dixie 7 Per Cent	5.00	5.66	4.00
"Pierce's Pride"	4.00	6.58	4.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Dried Blood		16.50	....
Nitrate Soda		15.21	....
Ground Fish		8.23	....
Cotton Seed Meal		6.16	....
Dixie Muriate Potash			48.00
Muriate Potash			48.00
Dixie Kainit			12.00
Kainit			12.00

Etiwan Fertilizer Co., Charleston, S. C.—

Etiwan 16 Per Cent Acid Phosphate.....	16.00		
Etiwan High Grade Acid Phosphate.....	14.00	....	....
Etiwan Dissolved Bone	13.00	....	....
Diamond Soluble Bone	13.00	....	....
Etiwan Acid Phosphate with Potash.....	11.00	....	1.00
Plow Brand Acid Phosphate with Potash....	11.00	....	1.00
Etiwan Potash Bone	10.00	....	4.00
Etiwan Soluble Bone with Potash.....	10.00	....	3.00
Diamond Soluble Bone with Potash.....	10.00	....	2.00
XX Acid Phosphate with Potash.....	10.00	....	2.00
Etiwan Blood and Bone Guano.....	9.00	2.06	1.00
Plow Brand Raw Bone Superphosphate.....	9.00	2.06	1.00
Etiwan 9-2-3 Per Cent Ammoniated Fertilizer.	9.00	1.65	3.00
Plow Brand Ammoniated Dissolved Bone....	9.00	1.65	2.00
Etiwan Superior Cotton Fertilizer.....	8.00	3.30	6.00
Etiwan Special Cotton Fertilizer.....	8.00	3.30	4.00
Plow Brand Special Tobacco Fertilizer.....	8.00	3.30	4.00
Etiwan Cotton Compound	8.00	2.47	3.00
Etiwan High Grade Cotton Fertilizer.....	8.00	2.47	2.00
Etiwan Ammoniated Fertilizer	8.00	1.65	2.00
Plow Brand Ammoniated Fertilizer.....	8.00	1.65	2.00
Etiwan Special Potash Mixture.....	8.00	....	4.00
Nitrate of Soda .....	....	14.82	....
Muriate of Potash .....	....	....	48.00
Genuine German Kainit .....	....	....	12.00

Elmore Gin and Fertilizer Co., Elmore, N. C.—

Elmore Cantaloupe Special	8.00	3.29	7.50
Elmore Standard Fertilizer	8.00	3.29	4.00
Elmore Cotton Fertilizer	8.00	2.47	3.00
Elmore X Fertilizer	6.50	2.47	2.50
Elmore Watermelon Special	5.50	3.29	10.00
Elmore Top Dresser .....	....	8.65	3.50
Elmore Corn Fertilizer .....	....	3.70	2.50

Elba Mfg. Co., Maxton, N. C.—

16 Per Cent Acid Phosphate	16.00	....	....
Elba Melon Grower Fertilizer.....	8.00	4.12	7.00
Elba Hornet's Nest Fertilizer	8.00	3.30	5.00
Elba Superior Fertilizer	8.00	3.30	4.00
Elba High Grade Fertilizer	8.00	3.30	4.00
Elba Sunrise Fertilizer	8.00	2.47	5.00
Elba Eclipse Fertilizer	8.00	2.47	4.00
John's Cotton Grower Fertilizer.....	8.00	2.47	4.00
Elba Gold Seal Fertilizer	8.00	2.47	3.00
Elba Standard Fertilizer	8.00	2.47	3.00
Pate's Cotton Grower Fertilizer	7.00	3.30	5.00
Jack's Special Fertilizer	4.00	8.25	4.00
Elba Top Dresser Fertilizer.....	....	7.42	3.00
Muriate Potash .....	....	....	48.00
German Kainit .....	....	....	12.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
<i>Eastern Cotton Oil Co., Hertford, N. C.—</i>			
Acid Phosphate	16.00	....	....
Acid Phosphate	14.00	....	....
"Ten-One-Four for Peanuts"	10.00	.83	4.00
Bone Potash	10.00	....	4.00
Currituck Special for Yellow Sweets	8.00	3.29	6.00
Mat White Special	8.00	3.29	4.00
Farmers Sensation for Tobacco	8.00	2.47	3.00
It-grows Currituck Yellows	8.00	2.47	3.00
Rain-proof Cotton Grower	8.00	2.47	3.00
Magic Economy	8.00	2.06	3.00
Fish and Blood Mixture	8.00	1.65	2.00
Perquinans Favorite	8.00	1.65	2.00
Early Bird	7.00	4.12	5.00
Hertford Truck Grower	6.00	5.77	5.00
Tankage and Fish Substitute, Peruvian Guano for Truck	6.00	4.12	7.00
Nun-such Potato Grower	6.00	4.12	7.00
Nitrate of Soda .....	....	15.67	....
Fish Scrap .....	....	9.00	....
Sulphate of Potash .....	....	....	48.00
Muriate of Potash .....	....	....	48.00
Genuine German Kainit .....	....	....	12.00

*Farmers Guano Co., Raleigh, N. C., and Norfolk,
Va.—*

Raw Bone Meal	Total	20.00	3.70	....
16 Per Cent Acid Phosphate		16.00	....	....
14 Per Cent Acid Phosphate		14.00	....	....
Farmers Acid Phosphate		13.00	....	....
Special H. G. Bone and Potash		11.00	....	5.00
Farmers Grain Grower		10.00	1.03	2.00
Special Bone and Potash Mixture		10.00	....	4.00
Century Bone and Potash Mixture		10.00	....	2.00
Farmers Meal and Tankage Mixture		8.00	3.30	4.00
Farmers Blood and Bone		8.00	3.30	4.00
Big Crop Guano		8.00	2.88	5.00
Money Point Guano		8.00	2.47	3.00
Golden Grade Guano		8.00	2.47	3.00
Toco Tobacco Guano		8.00	2.06	3.00
Farmers Ammoniated Guano		8.00	1.65	2.00
State Standard Guano		8.00	1.65	2.00
Farmers Peanut Guano		8.00	1.03	4.00
Special Bone and Potash		8.00	....	4.00
Farmers 7 Per Cent Trucker		7.00	5.76	7.00
Farmers Challenge		7.00	4.12	5.00
Farmers Formula		7.00	2.47	3.25
Farmers 6-7-5 Trucker		6.00	5.76	5.00
Farmers Top Dresser		3.00	8.23	4.00
Nitrate of Soda .....		....	15.63	....
Kanona Tankage .....		....	9.04	....
Ground Fish .....		....	8.22	....
Muriate of Potash .....		....	....	50.00
Sulphate of Potash .....		....	....	50.00
Genuine German Kainit .....		....	....	12.00

*Farmers Coöperative Fertilizer Co., Inc., Black-
stone and Kenbridge, Va.—*

F. C. F. Co.'s Raw Bone Meal	Total	21.00	3.70	....
Pure Animal Bone	Total	21.00	2.47	....
F. C. F. Co.'s Acid Phosphate		16.00	....	....

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
F. C. F. Co.'s Acid Phosphate.....	14.00	....	....
Jericho Corn Grower	10.00	1.03	....
F. C. F. Co.'s Bone and Potash Compound....	10.00	....	4.00
F. C. F. Co.'s Bone and Potash Compound....	10.00	....	2.00
Walkover for Corn and Peanuts.....	9.00	1.03	1.00
Virginia Special for Tobacco.....	8.00	3.29	2.00
The Meherrin Special for Tobacco.....	8.00	2.47	3.00
Nottoway Special for Tobacco.....	8.00	2.47	2.00
Free State Official Tobacco Guano.....	8.00	2.05	3.00
Pope's Peerless Guano	8.00	1.64	3.00
Paul Jones for Tobacco.....	8.00	1.64	2.00
Farmers Common Sense Guano.....	8.00	1.27	3.00
Kainit .....	....	....	12.00

*Foreign Products Co., Inc., Baltimore, Md., and
Wilmington, N. C.—*

Bone Meal	22.00	2.46	....
Ground Thomas Phosphate "Star Brand"....	17.00	....	....
Acid Phosphate	16.00	....	....
Nitrate of Soda .....	....	15.00	....
Ground Blood .....	....	13.98	....
Ground Tankage .....	....	9.05	....
Agricultural Lime 96 Per Cent Carbonate....	....	9.05	....
Ground Fish .....	....	8.22	....
Top Dresser "Star Brand".....	....	7.40	3.00
Muriate of Potash .....	....	....	50.00
Sulphate of Potash .....	....	....	48.00
Kainit .....	....	....	12.00
Prepared Lime .....	....	....	3.00.

Farmville Oil and Fertilizer Co., Farmville, N. C.—

XX High Grade Acid Phosphate.....	16.00	....	....
High Grade Acid Phosphate.....	14.00	....	....
FFF Bone and Potash.....	12.00	....	4.00
Farmville High Grade (C. S. M.).....	10.00	2.47	4.00
Davis's Corn Grower	10.00	.82	5.00
Pitt County Corn Grower	10.00	.82	4.00
Farmville's Favorite Fertilizer	9.00	2.90	5.00
Greene County Special (for tobacco).....	9.00	2.67	5.00
Scientific Cotton Grower	9.00	2.26	2.00
Specific Cotton Grower	9.00	2.26	2.00
East Carolina Cotton Grower.....	9.00	2.26	2.00
Davis's Special Guano	8.00	3.70	7.00
8-4-5 Tobacco Special	8.00	3.30	5.00
Carolina Chief	8.00	3.30	4.00
Lang's Favorite	8.00	3.30	4.00
Farmville Special	8.00	3.30	4.00
Turnage's Fish Scrap Mixture.....	8.00	3.30	4.00
Harris's Bright Leaf Tobacco Grower.....	8.00	3.30	4.00
Uncle Sam's Tobacco Grower.....	8.00	3.29	3.00
Big Leaf (Tobacco Grower).....	8.00	2.47	7.00
Lewis's 8-3-7 Tobacco Special.....	8.00	2.47	7.00
Sterling for Tobacco	8.00	2.47	5.00
Pollard's Special Formula	8.00	2.47	5.00
Lewis's 8-3-5 Tobacco Special.....	8.00	2.47	5.00
Obelisk	8.00	2.47	4.00
Pride of Pitt	8.00	2.47	4.00
Harris's Special Tobacco Grower.....	8.00	2.47	3.00
Turnage's Fish Scrap Mixture.....	8.00	2.47	3.00
Congo	8.00	2.47	3.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Davis's High Grade Tobacco Manure.....	8.00	2.47	3.00
Marlboro Tobacco Grower	8.00	2.47	3.00
Golden Crown	8.00	2.47	3.00
Marlboro Cotton Grower	8.00	2.47	3.00
Pitt County Cotton Grower.....	8.00	2.25	4.50
Chamblee & Sons' Special.....	8.00	2.25	2.00
Cotton King	8.00	2.05	4.00
Perfect Tobacco Guano	8.00	2.05	3.00
Davis's Cotton Grower	8.00	1.65	2.00
Carolina Standard	8.00	1.65	2.00
Farmville Standard (C. S. M.).....	8.00	1.65	2.00
Farmville's Bone Mixture	8.00	1.65	2.00
Lewis's Special for Cotton	7.00	2.67	4.50
Lang's High Grade Tobacco Manure	6.00	2.88	6.00
Evergreen Top Dresser	4.00	8.24	4.00
Second Application	4.00	4.10	6.00
Sulphate of Ammonia .....	....	20.50	....
Nitrate of Soda .....	....	15.00	....
Sulphate of Potash .....	....	....	50.00
Muriate of Potash .....	....	....	48.00
Hard Salts .....	....	....	16.00
Genuine German Kainit .....	....	....	12.00

Fremont Oil Mills, Fremont, N. C.—

16 Per Cent Acid Phosphate	16.00	....	....
Fremont High Grade Bone and Potash.....	10.00	....	4.00
F. O. M. Co. 9-3-7.....	9.00	2.47	7.00
Carolina C. S. M. Compound.....	9.00	2.26	2.00
S. H. & Co.'s 8-4-4.....	8.00	3.29	4.00
Fremont High Grade Guano	8.00	3.29	4.00
Fremont Oil Mill Co.'s Special Tobacco.....	8.00	2.47	5.00
Nahunta Special	8.00	2.47	3.00
S. H. & Co.'s 8-3-3.....	8.00	2.47	3.00
Square Deal	8.00	2.05	3.00
Up-to-date	8.00	1.65	2.00
F. O. M. Co.'s 6-5-7.....	6.00	4.10	7.00
F. O. M. Co. Top Dresser.....	3.00	7.40	5.00
Nitrate of Soda .....	....	14.85	....
Muriate of Potash .....	....	....	48.00
Sulphate of Potash .....	....	....	48.00
Kainit .....	....	....	12.00

Farmers Cotton Oil Co., Wilson, N. C.—

16 Per Cent Acid Phosphate.....	16.00	....	....
Bonum Acid Phosphate	14.00	....	....
Contentnea Acid Phosphate.....	13.00	....	....
Washington's Corn Mixture Guano.....	10.00	.82	5.00
Xtra Good Bone and Potash	10.00	....	2.00
Whitley's Special Guano	9.00	3.30	4.00
Dean's Special Guano	8.00	3.70	7.00
Regal Tobacco Guano	8.00	2.88	5.00
Newsome's Tobacco Special	8.00	2.47	4.00
J. D. Farrier's Special Guano.....	8.00	2.47	3.00
Graves' Cotton Grower Guano.....	8.00	2.47	3.00
Golden Gem Guano	8.00	2.47	3.00
Wilson High Grade Guano.....	8.00	2.27	2.00
Planters' Friend Guano	8.00	2.06	3.00
Carolina Choice Tobacco Guano	8.00	2.06	3.00
Crop King Guano	8.00	1.65	2.00
Farmers' Special Guano	8.00	1.65	2.00
Rogers' Truck Grower	7.00	5.76	7.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Wilson Top Dresser	2.00	9.05	4.00
Perfect Top Dresser	2.00	8.23	5.00
Sulphate of Ammonia .....	....	20.57	....
Nitrate of Soda .....	....	15.63	....
Tomlinson's Nitrate Special .....	....	9.87	5.00
Sulphate of Potash .....	....	....	50.00
Muriate of Potash .....	....	....	50.00
German Kainit .....	....	....	12.00

*Franklin Cotton Oil and Fertilizer Co., Inc.,
Franklin, Va.—*

Pretlow & Co.'s H. G. Acid Phosphate.....	16.00	....	....
Pretlow & Co.'s H. G. Truck Fertilizer.....	8.00	4.12	5.00
Pretlow & Co.'s Cotton-seed Meal Mixture....	8.00	2.47	3.00
Pretlow & Co.'s Samson Guano.....	8.00	1.65	2.00
Pretlow & Co.'s Peanut Grower.....	8.00	1.00	4.00
Pretlow & Co.'s Genuine German Kainit.....	....	....	12.00

Georgia Chemical Works, Augusta, Ga.—

High Grade Dissolved Bone Phosphate.....	16.00	....	....
Extra Dissolved Bone Phosphate.....	14.00	....	....
Dissolved Bone Phosphate.....	13.00	....	....
12 Per Cent Dissolved Bone Phosphate.....	12.00	....	....
High Grade XX Acid Phosphate with Potash.	10.00	....	4.00
Bone and Potash	10.00	....	2.00
Carolina Special Cotton Grower.....	9.00	2.47	4.00
Mascot Blood and Bone Guano	9.00	2.47	3.00
Bumper Tobacco Grower	9.00	1.85	4.00
Good as Gold Guano.....	9.00	1.65	3.00
Gem Crop Grower	9.00	1.65	2.00
Georgia Belle Compound	9.00	.82	2.00
Cardinal High Grade	8.00	3.29	4.00
Intensive Formula	8.00	2.47	3.00
Golden Leaf Special Tobacco Compound.....	8.00	2.47	3.00
Three Oaks High Grade Guano.....	8.00	2.47	2.00
Thunderbolt Tobacco Special	8.00	2.06	3.00
Georgia Formula	8.00	1.65	2.00
XXX Meal Mixture	8.00	1.65	2.00
Georgia Special Tobacco	8.00	1.65	2.00
Acid Phosphate with 4 Per Cent Potash.....	8.00	....	4.00
Kainit .....	....	....	12.00

N. G. Grandy & Co., Elizabeth City, N. C.—

Grandy's High Grade 16 Per Cent Acid Phosphate	16.00		
Grandy's 10-2 B. & P.	10.00	....	2.00
Grandy's High Grade 8-4-4 Bargain Guano...	8.00	3.30	4.00
Grandy's Cotton Grower	8.00	2.46	3.00
Grandy's Farmers 8-2-2 Guano	8.00	1.65	2.00
Grandy's High Grade Potato Guano.....	6.00	4.10	7.00
German Kainit .....	....	....	12.00

German Kali Works, New York, N. Y.—

Muriate of Potash.....	....	....	48.00
Sulfate of Potash.....	....	....	47.00
Manure Salts .....	....	....	20.00
Kainit .....	....	....	12.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
<i>Griffith & Boyd Co., Baltimore, Md.—</i>			
High Grade 16 Per Cent Acid Phosphate.....	16.00	....	....
Grower's Favorite	8.00	3.30	4.00
Farmer's Potato Manure.....	8.00	.82	9.00
Fish, Bone, and Potash.....	7.25	1.50	3.00
7 Per Cent Guano.....	5.00	5.75	5.00
<i>Home Fertilizer and Chemical Co., Baltimore, Md.—</i>			
Eclipse Dissolved Phosphate.....	16.00	....	....
Home High Grade Acid Phosphate.....	14.00	....	....
Home Dissolved Animal Bone.....	12.00	1.65	....
Gilt Edge Crop Grower.....	10.00	1.65	4.00
Eclipse Blood, Beef and Bone.....	10.00	1.23	3.00
Home Bone and Potash.....	10.00	....	5.00
Home Alkaline Bone.....	10.00	....	2.00
Home Ammoniated Bone.....	9.00	1.65	3.00
Everybody's Fertilizer	9.00	.82	2.00
Home Standard Guano.....	8.00	3.30	4.00
Eclipse Dissolved Bone and Potash.....	8.00	2.48	4.00
Riosa Tobacco Compound.....	8.00	2.48	3.00
Special C. & C. Compound.....	8.00	2.48	3.00
Yancey's Formula for Yellow Leaf Tobacco...	8.00	2.48	2.00
Home Potato Special.....	8.00	1.65	10.00
Matchless Guano	8.00	1.65	4.00
Home Cereal Fertilizer.....	8.00	1.65	2.00
Ammoniated Bone Manure.....	7.00	1.65	5.00
Farmer's Choice	7.00	.82	4.00
Trucker's Special Compound.....	6.00	5.77	5.00
Home Vegetable Fertilizer.....	6.00	4.12	6.00
Eclipse Ammoniated Compound.....	6.00	3.30	10.00
Home Potato Grower.....	6.00	3.30	4.00
Sulphate of Ammonia.....	....	20.62	....
Nitrate of Soda.....	....	14.85	....
Cerealite Top Dresser.....	....	7.43	3.00
Home Fertilizer .....	....	5.77	7.00
Muriate of Potash.....	....	....	50.00
Sulphate of Potash.....	....	....	48.00
German Kainit .....	....	....	12.00
<i>Hadley, Harris & Co., Inc., Wilson, N. C.—</i>			
Hadley's Special S-4½-7.....	8.00	3.70	7.00
Hadley's S-3-5 Mixture.....	8.00	2.47	5.00
Golden Weed Tobacco Grower.....	8.00	2.47	3.00
Hadley Boss	8.00	2.26	2.50
Daisy Fish Mixture.....	8.00	1.65	2.00
Harriss' Java Tobacco Guano.....	7.00	3.30	7.00
Harriss' Java Tobacco Guano.....	7.00	3.30	7.00
Harriss' Electric Top Dresser.....	2.00	8.22	3.00
<i>L. Harvey & Son Co., Kinston, N. C.—</i>			
Fish Scrap .....	....	8.23	....
<i>Hampton Guano Co., Norfolk, Va.—</i>			
Pure Ground Bone.....Total	20.00	3.70	....
Supreme Acid Phosphate.....	16.00	....	....
Hampton Acid Phosphate.....	14.00	....	....
Hampton 12-5 Bone and Potash.....	12.00	....	5.00
Hampton Bone and Potash Mixture.....	11.00	....	2.00
Hampton Crop Grower.....	10.00	....	4.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Dauntless Potash Mixture.....	10.00	....	2.00
Arlington Animal Bone Fertilizer.....	9.00	1.85	4.00
Alpha Crop Grower.....	8.50	2.06	2.50
Little's Favorite Crop Grower.....	8.00	3.29	4.00
Hampton Tobacco Guano.....	8.00	2.47	3.00
P. P. P. Princess Prolific Producer.....	8.00	2.47	3.00
Extra Tobacco Guano.....	8.00	1.65	2.00
Shirley Superphosphate	8.00	1.65	2.00
Hampton Special Grain and Peanut Fertilizer.	8.00	1.00	4.00
Excelsior Bone and Potash.....	8.00	....	4.00
Reliance Truck Guano.....	7.00	4.11	5.00
Virginia Truck Grower.....	6.00	5.76	5.00
Hampton 10 Per Cent Truck Grower.....	5.00	8.23	3.00
Hampton Top Dresser.....	4.00	8.23	2.00
Nitrate of Soda.....	....	15.00	....
Dry Ground Fish.....	....	8.23	....
Special Top Dresser.....	....	7.41	3.00
Muriate of Potash.....	....	....	49.00
Sulphate of Potash.....	....	....	48.00
Genuine German Kainit.....	....	....	12.00

S. B. Harrell & Co., Inc., Norfolk, Va.—

Harrell's Acid Phosphate.....	14.00	....	....
Harrell's Eclipse	9.00	2.26	2.00
Harrell's Champion Cotton and Peanut Grower	8.00	1.65	2.00

Hartsville Fertilizer Co., Hartsville, S. C.—

Coker's Special for Cotton.....	10.00	3.29	3.00
Hartsville Special Cotton Guano.....	10.00	2.47	3.00
Hartsville Grain Guano.....	10.00	1.65	4.00
Hartsville Special Cotton Compound.....	9.00	2.47	3.00
Hartsville Special for Cotton.....	9.00	2.26	2.00
Farmer's Pride	9.00	1.65	2.00
Light Land Leader.....	8.00	5.76	5.00
Hartsville Bright Tobacco Guano.....	8.00	3.29	8.00
Hartsville Cotton Grower.....	8.00	3.29	4.00
Monarch Tobacco Guano.....	8.00	3.29	4.00
Renown Cotton Guano.....	8.00	3.29	4.00
Two Jay Meal Mixture.....	8.00	3.29	4.00
Cokers Cotton Compound.....	8.00	2.49	3.00
Hartsville Best Tobacco Guano.....	8.00	2.47	6.00
Hartsville Pride	8.00	2.47	4.00
Themisto Meal Mixture.....	8.00	2.47	3.00
Hartsville Cotton Compound.....	8.00	2.47	3.00
Noname Tobacco Guano.....	8.00	2.47	3.00
Hartsville Special Tobacco Guano.....	8.00	2.06	3.00
Cinco Cotton Compound.....	8.00	2.06	1.00
Hartsville Early Grower.....	8.00	1.65	3.00
Hartsville Special Pride.....	7.00	4.12	5.00
Calhoun Pride	5.00	3.29	4.00
Hartsville Special Top Dresser.....	4.00	8.24	4.00
Pedigreed Top Dresser.....	4.00	6.18	2.50
Coker's Special for Corn.....	2.00	5.76	7.00
Hartsville Corn Special.....	2.00	5.76	4.00
Thebest Top Dresser.....	....	7.42	3.00

The Hubbard Fertilizer Co., Baltimore, Md.—

Hubbard's 16 Per Cent Phosphate.....	16.00	....	....
Hubbard's 14 Per Cent Phosphate.....	14.00	....	....

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Hubbard's Special Mixture 10 and 4.....	10.00	....	4.00
Hubbard's B. and P. 10 and 2.....	10.00	....	2.00
Hubbard's Noxall	8.00	3.28	4.00
Hubbard's Royal Ensign.....	8.00	2.46	4.00
Hubbard's Yellow Wrapper.....	8.00	2.46	3.00
Hubbard's Fish Compound.....	8.00	1.64	3.00
Hubbard's Exchange Guano.....	8.00	1.64	2.00
Hubbard's Southern Leader.....	7.00	3.28	5.00
Hubbard's 5 Per Cent Royal Seal.....	6.00	4.10	5.00
Hubbard's Heavy Long Leaf.....	4.00	3.28	6.00
Hubbard's New Process Top Dresser.....	....	7.51	3.50
Pure German Kainit.....	....	....	12.00

M. P. Hubbard, Baltimore, Md.—

Hubbard's Horanah Special.....	8.00	2.47	3.00
Hubbard's Celebrated Phosphate.....	8.00	1.65	2.00
Commercial Prepared Lime and Potash.....	....	....	2.00

*Interstate Chemical Corporation, Charleston, S. C.,
and Charlotte, N. C.—*

Acid Phosphate	16.00	....	....
Acid Phosphate	14.00	....	....
Acid Phosphate	13.00	....	....
Acid Phosphate with Potash.....	10.00	....	4.00
Acid Phosphate with Potash.....	10.00	....	2.00
Special High Grade Guano.....	9.00	1.65	3.00
Favorite Crop Grower.....	9.00	1.65	2.00
Special High Grade Truck Guano.....	8.00	3.29	6.00
High Grade Ammoniated Fertilizer.....	8.00	3.29	4.00
Planter's Preference	8.00	2.47	3.00
Challenge Brand Guano.....	8.00	2.06	2.00
Complete Fertilizer	8.00	2.06	1.00
Ammoniated Fertilizer	8.00	1.65	2.00
Grain and Hay Producer.....	8.00	.82	4.00
Acid Phosphate with Potash.....	8.00	....	4.00
Special H. G. Meal Mixture.....	7.00	3.29	5.00
Special High Grade Formula.....	7.00	2.47	7.00
High Grade Top Dresser.....	4.00	6.17	2.50
Nitrate of Soda.....	....	14.81	....
Muriate of Potash.....	....	....	48.00
Sulphate of Potash.....	....	....	48.00
Kainit .....	....	....	12.00

International Agricultural Corporation, Atlanta, Ga.—

Muriate of Potash.....			48.00
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The Imperial Co., Norfolk, Va.—

Imperial Pure Ground Bone.....Total	20.00	3.70	
Imperial High Grade Tennessee Acid Phos- phate	16.00		
Imperial High Grade Acid Phosphate.....	14.00	....	....
Imperial Southern Vineyard's Special.....	10.00	....	8.00
Imperial Catawba Wheat Grower.....	10.00	....	4.00
Imperial Carolina Wheat Mixture.....	10.00	....	3.00
Imperial Virginia Grain Mixture.....	10.00	....	2.00
Imperial Bone and Potash.....	10.00	....	2.00
Imperial Bryant's Special.....	9.00	3.29	4.00
Imperial Martin County Special Crop Grower.	9.00	2.26	2.00
Imperial Crop Grower.....	9.00	1.65	4.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Imperial Pumpelly's Piedmont Tobacco			
Grower	8.00	3.29	7.00
Imperial Snowflake Cotton Grower.....	8.00	3.29	4.00
Imperial Tobacco Grower.....	8.00	3.29	4.00
Imperial Robeson County Special.....	8.00	2.47	4.00
Imperial X. L. O. Cotton Guano.....	8.00	2.47	3.00
Imperial Tobacco Guano.....	8.00	2.47	3.00
Imperial Yellow Bark Sweet Potato Guano..	8.00	2.47	3.00
Imperial Pee Dee Cotton Grower.....	8.00	2.47	3.00
Imperial F. and B. Cotton Guano.....	8.00	2.06	3.00
Imperial Bright Tobacco Guano.....	8.00	2.06	3.00
Imperial Tennessee Tobacco Guano.....	8.00	1.65	8.00
Imperial Peanut Guano.....	8.00	1.65	4.00
Imperial Cotton Grower.....	8.00	1.65	2.00
Imperial Peanut and Corn Guano.....	8.00	1.65	2.00
Imperial Champion Guano.....	8.00	1.65	2.00
Imperial Cisco Soluble Guano.....	8.00	1.65	2.00
Imperial Standard Premium Guano.....	8.00	1.65	2.00
Imperial Ammoniated Guano.....	8.00	1.00	4.00
Imperial Fish and Bone Grain Grower.....	8.00	.82	4.00
Imperial Yadkin Wheat Grower.....	8.00	....	4.00
Imperial 7-7-7 Potato Guano.....	7.00	5.76	7.00
Imperial High Grade Irish Potato Guano...	7.00	4.11	8.00
Imperial Dawson's Cotton Grower.....	7.00	2.67	2.75
Imperial Roanoke Crop Grower.....	7.00	2.47	2.00
Imperial Bryant's Special.....	6.50	2.47	10.00
Imperial Asparagus Mixture.....	6.00	4.94	7.00
Imperial 5-6-7 Potato Guano.....	6.00	4.11	7.00
Imperial Williams' Special Potato Guano....	6.00	4.11	5.00
Imperial Fish and Bone.....	6.00	3.29	4.00
Imperial Sweet Potato Guano.....	6.00	1.65	6.00
Imperial 10 Per Cent Guano.....	5.00	8.23	2.50
Imperial Ammonia Top Dresser for Spinach..	5.00	8.23	....
Imperial Special 7 Per Cent for Potatoes....	5.00	5.76	5.00
Imperial Eastern Shore Sweet Potato Special.	5.00	3.29	9.00
Imperial Special Tobacco Guano.....	5.00	3.29	9.00
Imperial Laughinghouse Special Tobacco			
Guano	4.00	3.29	6.00
Imperial Conetoe Cotton Grower.....	4.00	3.29	4.00
Imperial Cubanola Tobacco Guano.....	4.00	2.47	5.00
Imperial Nitrate of Soda.....	....	15.00	....
Imperial Hardison's Special Top Dresser....	....	8.23	3.00
Imperial Dry Ground Fish Scrap.....	....	8.23	....
Imperial Top Dresser.....	....	7.40	3.00
Imperial Animal Tankage.....	....	5.76	....
Imperial Muriate of Potash.....	....	....	49.00
Imperial Sulphate of Potash.....	....	....	48.00
Imperial Genuine German Kainit.....	....	....	12.00

Imperial Cotton Oil Co., Statesville, N. C.—

Imperial 16 Per Cent Acid Phosphate.....	16.00		
Imperial High Grade Acid Phosphate.....	14.00	....	....
10-4 Bone and Potash.....	10.00	....	4.00
Imperial Bone and Potash.....	10.00	....	2.00
King Cotton	8.00	2.47	3.00
Imperial Corn Grower.....	8.00	2.47	1.50
"Grasoil"	8.00	1.65	2.00
Imperial Cotton Grower.....	8.00	1.65	2.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
<i>N. B. Josey Guano Co., Tarboro, N. C.—</i>			
Josey's 16 Per Cent Acid Phosphate.....	16.00	....	....
Josey's Bone and Potash.....	10.00	....	4.00
Josey's Prolific Cotton Grower.....	9.00	2.27	2.00
Josey's Truck Guano.....	8.00	4.10	5.00
Josey's 8-4-4 C. S. Meal and Fish Scrap Guano.	8.00	3.30	4.00
Josey's Tip Top C. S. Meal and Fish Scrap			
Tobacco Guano	8.00	2.47	3.00
Josey's Home Builder C. S. M. and F. Guano.	8.00	2.47	3.00
Josey's Favorite C. S. Meal and Fish Scrap			
Guano	8.00	2.05	2.50
Josey's C. S. Meal Guano.....	8.00	1.65	2.00
Josey's Potato Guano.....	7.00	5.77	7.00
Josey's Peanut Guano.....	5.50	1.23	5.50
Josey's Elite Top Dresser.....	3.00	7.42	4.00
Nitrate of Soda.....	....	15.50	....
Josey's Top Dresser.....	....	7.42	4.00
Muriate of Potash.....	....	....	48.00
Manure Salts .....	....	....	20.00
Genuine German Kainit.....			12.00

J. T. John Co., John's, N. C.—

High Grade Acid Phosphate.....	16.00		
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A. S. Lee & Sons Co., Richmond, Va.—

Thomas Basic Slag.....Total	17.00		
Lee's Corn Fertilizer.....	10.00		2.00
Lee's Wheat Fertilizer.....	10.00	....	2.00
Lee's Bone and Potash.....	9.00	....	4.00
Lee's 8-3-3 Fertilizer.....	8.00	2.46	3.00
Lee's Natural Tobacco Grower.....	8.00	1.64	2.00
Lee's 8-2-2 Fertilizer.....	8.00	1.64	2.00
Lee's Prepared Agricultural Lime.....	....	....	2.25

Lenoir Oil and Ice Co., Kinston, N. C.—

L. O. & I. Co. Acid Phosphate.....	16.00		
Utility High Grade Fertilizer.....	8.00	3.30	4.00
Lenoir Meal Mixture.....	8.00	2.47	4.00
Caswell Cotton Grower.....	8.00	2.47	3.00
Leco Tobacco Guano.....	8.00	2.47	3.00
Kinston Special for Tobacco.....	7.00	3.30	7.00
Sugg's Special Mixture.....	7.00	2.26	4.00
Nitrate of Soda.....	....	15.67	....
Sulphate of Potash.....	....	....	50.00
Muriate of Potash.....	....	....	48.00
Genuine German Kainit .....	....	....	12.00

Lister's Agricultural Chemical Works, Newark, N. J.—

Lister's 4½-45 Bone Meal.....Total	20.59	3.70	....
Lister's High Grade Acid Phosphate.....	16.00	....	....
Lister's Phosphoric Acid and Potash.....	10.00	....	4.00
Lister's Dissolved Phosphate and Potash.....	10.00	....	2.00
Lister's Carolina Bright for Tobacco.....	9.00	2.47	3.00
Lister's Standard Pure Bone Superphosphate			
of Lime	9.00	1.65	2.00
Lister's Complete Manure.....	8.00	2.47	3.00
Lister's Ammoniated Dissolved Bone Phos-			
phate	8.00	2.06	2.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Lister's Success Fertilizer.....	8.00	1.65	2.00
Lister's 5-6-4 Fertilizer.....	6.00	4.11	4.00
Nitrate of Soda.....	....	15.00	....

John F. McNair, Laurinburg, N. C.—

Nitrate of Soda.....	....	14.81	....
Sulphate of Potash.....	....	....	50.00
Muriate of Potash.....	....	....	48.00
Genuine German Kainit.....	....	....	12.00

E. H. & J. A. Meadows Co., New Bern, N. C.—

Diamond Acid Phosphate.....	16.00	....	....
Diamond Acid Phosphate.....	14.00	....	....
Meadows' Dissolved Bone and Potash Com- pound	10.00	....	5.00
Meadows' Dissolved Bone and Potash Com- pound	10.00	....	4.00
Meadows' Dissolved Bone and Potash Com- pound	10.00	....	2.00
Thompson's Fish Mixture.....	9.00	2.88	7.50
Meadows' Lobos Guano.....	8.00	4.11	5.00
Meadows' Ideal Tobacco Guano.....	8.00	3.29	4.00
Meadows' Sweet Potato Guano.....	8.00	2.47	10.00
Brooks' Special Tobacco Grower.....	8.00	2.47	5.00
Parker's Special Tobacco Guano.....	8.00	2.47	4.00
Dixon's High Grade Tobacco Guano.....	8.00	2.47	3.00
Meadows' Gold Leaf Tobacco Guano.....	8.00	2.47	3.00
Meadows' Roanoke Guano.....	8.00	2.05	3.00
Meadows' All Crop Guano.....	8.00	2.05	2.50
Meadows' Cotton Guano.....	8.00	1.65	2.00
Hokerton Cotton Guano.....	8.00	1.64	2.00
Meadows' Great Cabbage Guano.....	7.00	5.76	7.00
Meadows' Great Potato Guano.....	7.00	4.11	8.00
Meadows' 10 Per Cent Guano.....	6.00	8.23	2.50
Simmons' Special Guano.....	6.00	2.47	6.00
Nitrolite .....	....	7.43	3.00
Meadows' German Kainit.....	....	....	12.00

The Miller Fertilizer Co., Baltimore, Md.—

Miller's 16 Per Cent Acid Phosphate.....	16.00	....	....
Miller's 14 Per Cent Acid Phosphate.....	14.00	....	....
Corn and Peanut Grower.....	10.50	....	2.25
Corn and Wheat Grower.....	10.50	....	2.25
The Miller Fertilizer Co.'s 10 and 4 Per Cent. Clinch	10.00	....	4.00
Trucker	10.00	....	2.00
No. 1 Potato and Vegetable Grower.....	8.00	4.12	5.00
Miller's Tobacco Special.....	8.00	3.71	7.00
Miller's Irish Potato.....	8.00	3.29	7.00
4 Per Cent Tobacco.....	8.00	3.29	4.00
Standard Phosphate	8.00	2.47	3.00
Tobacco King	8.00	2.47	3.00
Miller's High Grade.....	8.00	2.06	3.00
Special Tobacco Grower.....	8.00	1.65	4.00
Potato and Vegetable Guano.....	8.00	1.65	4.00
Ammoniated Dissolved Bone.....	8.00	1.65	2.00
Farmer's Profit	8.00	1.65	2.00
Everett's Peanut Special.....	8.00	.82	4.00
Miller's 7 Per Cent.....	7.00	5.76	7.00
High Grade Potato.....	6.00	4.12	7.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Special	4.00	6.58	3.00
Nitrate of Soda.....		15.05	....
Muriate of Potash.....			50.00
Sulphate of Potash.....			48.00
Kainit			12.00

*The Mapes Formula and Peruvian Guano Co.,
Newark, N. J.—*

Mapes' Complete Manure, "A" Brand.....	10.00	2.47	2.50
Mapes' Corn Manure.....	8.00	2.47	6.00
Mapes' Vegetable or Complete Manure for Light Soils	6.00	4.94	6.00
Mapes' Economical Potato Manure.....	4.00	3.29	8.00

T. W. Mewborn & Co., Kinston, N. C.—

H. G. Acid Phosphate.....	16.00	....	....
Genuine German Kainit.....	....	....	12.00

D. B. Martin Co., Richmond, Va.—

Martin's Pure Ground Bone.....Total	22.00	2.46	....
Martin's Raw Bone Meal.....Total	21.00	3.70	....
Martin's Acid Phosphate.....	16.00	....	....
Martin's Acid Phosphate.....	14.00	....	....
Martin's Pure Dissolved Animal Bone.....	12.00	1.65	....
Martin's Potash and Soluble Bone.....	12.00	....	5.00
Martin's Potash and Soluble Bone.....	12.00	....	3.00
Martin's Potash and Soluble Bone.....	11.00	....	5.00
Martin's Potash and Soluble Bone.....	10.00	....	6.00
Martin's Potash and Soluble Bone.....	10.00	....	5.00
Jennette's Potash and Soluble Bone.....	10.00	....	4.00
Martin's Potash and Soluble Bone.....	10.00	....	4.00
Martin's Potash and Soluble Bone.....	10.00	....	3.00
Martin's Potash and Soluble Bone.....	10.00	....	2.00
Jennette's Potash and Soluble Bone.....	10.00	....	2.00
Martin's Tobacco Special.....	9.00	2.46	3.00
Martin's Cotton Special.....	9.00	2.46	3.00
Martin's Tobacco Compound.....	9.00	2.26	2.00
Johnson's High Grade.....	9.00	2.05	5.00
Martin's Dissolved Organic Compound.....	9.00	1.00	3.00
Martin's Corn and Cereal Special.....	9.00	1.00	2.00
Martin's High Grade Guano.....	8.75	1.65	2.00
Martin's Blood, Bone and Potash.....	8.00	4.10	7.00
Martin's Red Star Brand Fertilizer.....	8.00	4.10	5.00
Special Fertilizer	8.00	3.28	6.00
Martin's Cotton and Tobacco Guano.....	8.00	3.28	6.00
Jennette's Cotton Guano.....	8.00	3.28	4.00
Martin's Tobacco Special.....	8.00	3.28	4.00
Martin's Cotton Guano.....	8.00	3.28	4.00
Martin's Red Star Brand.....	8.00	3.28	4.00
Martin's Blue Ribbon Brand Fertilizer.....	8.00	3.28	2.00
Martin's Bull Head Fertilizer.....	8.00	2.46	8.00
Martin's Cotton and Tobacco Guano.....	8.00	2.46	5.00
Privott's Favorite	8.00	2.46	4.00
Martin's Bull Head.....	8.00	2.46	3.00
Martin's Tobacco Special.....	8.00	2.46	3.00
Martin's Meal Mixture.....	8.00	2.46	3.00
Jennette's Slaughter House Mixture.....	8.00	2.46	3.00
Martin's Special Fertilizer.....	8.00	2.05	3.00
Martin's Cotton Guano.....	8.00	2.05	1.00
Privott's Special for Potatoes and Peanuts....	8.00	1.65	6.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Martin's Cotton and Tobacco Guano.....	8.00	1.65	5.00
Martin's Cotton and Tobacco Guano.....	8.00	1.65	3.00
Martin's Animal Organic Compound.....	8.00	1.65	3.00
Jennette's Beef Blood and Bone.....	8.00	1.65	2.00
Martin's Slaughter House Special.....	8.00	1.65	2.00
Martin's Wheat Special.....	8.00	1.65	2.00
Martin's Carolina Special for Tobacco.....	8.00	1.65	2.00
Martin's Carolina Cotton.....	8.00	1.65	2.00
Martin's Corn and Cereal Special.....	8.00	1.65	2.00
Martin's Old Virginia Favorite.....	8.00	1.65	2.00
One Eight Four.....	8.00	1.03	4.00
Martin's Peanut Grower.....	8.00	1.03	4.00
Martin's Potash and Soluble Bone.....	8.00	....	4.00
Martin's Top Dresser.....	7.00	8.22	2.50
Martin's Red Star Brand Fertilizer.....	7.00	4.10	5.00
Glover's Special	7.00	3.28	8.00
Martin's Gilt Edge Potato Manure.....	7.00	2.46	10.00
Martin's 7 Per Cent Guano.....	6.00	5.74	5.00
Martin's Animal Bone Potato Fertilizer.....	6.00	4.10	7.00
Martin's Early Truck and Vegetable Grower.	6.00	3.28	8.00
Knowles' Special	6.00	3.28	6.00
Martin's Top Dresser.....	5.00	8.22	2.50
Nitrate of Soda.....	....	15.23	....
Muriate of Potash.....	....	....	50.00
Sulphate of Potash.....	....	....	48.00
Genuine German Kainit .....	....	....	12.00

McNair Phosphate Co., Laurinburg, N. C.

Acid Phosphate	16.00	....	....
Acid Phosphate	14.00	....	....
Humus	10.00	3.29	5.00
Rocky Ford	10.00	2.47	7.00
Florena	8.00	3.29	4.00
Floradora	8.00	3.29	4.00
Supply Company Special.....	8.00	2.47	4.00
Oceola	8.00	2.47	3.00
Rob Roy	8.00	2.47	3.00
Red Raven	8.00	1.65	3.00
Bostick's High Grade.....	7.00	3.29	5.00
Scotland Special	6.40	2.13	3.00
Floradora Top Dresser.....	4.00	6.58	4.00
Nitrate of Soda.....	....	15.63	....
Muriate of Potash.....	....	....	48.00
German Kainit .....	....	....	12.00
Robeson Special .....	....	....	....

Marietta Fertilizer Co., Atlanta, Ga.—

Bone Meal	Total	24.00	2.47	....
Raw Bone Meal.....	Total	22.00	3.70	....
Marietta Extra H. G. Acid.....		17.00	....	....
Marietta XXXX High Grade Acid Phosphate.		16.00	....	....
Marietta High Grade Acid Phosphate.....		14.00	....	....
Marietta 13-4		13.00	....	4.00
Marietta Potash Acid.....		12.00	....	6.00
Marietta Phosphate and Potash.....		12.00	....	4.00
Marietta Wheat and Clover Grower.....		12.00	....	2.00
Marietta Truck Guano.....		10.00	3.30	4.00
Marietta Ammoniated Bone.....		10.00	2.47	3.00
Langford's Special		10.00	1.65	4.00
Cooper's High Grade Guano.....		10.00	1.65	2.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Fish Compound	10.00	1.65	2.00
Royal Seal Guano.....	10.00	1.65	2.00
Tonawando Guano	10.00	1.65	2.00
Marietta Special Guano.....	10.00	.82	3.00
Marietta Potash Mixture.....	10.00	....	5.00
Marietta Potash Special.....	10.00	....	4.00
Marietta Dissolved Bone Potash.....	10.00	....	2.00
Marietta Cotton Grower.....	9.00	2.47	3.00
Marietta Fertilizer, No. 9-2½-5.....	9.00	2.05	5.00
Marietta Boll Producer.....	9.00	1.65	3.00
Marietta Beef Blood and Bone.....	9.00	1.65	3.00
Marietta Blood, Bone and Potash.....	8.00	4.11	7.00
Marietta Fertilizer, No. 836.....	8.00	2.47	6.00
Fertilizer No. 834 for Tobacco.....	8.00	2.47	4.00
Marietta Tobacco Special.....	8.00	2.47	3.00
Marietta Fertilizer, No. 833.....	8.00	2.47	3.00
Pride of Piedmont.....	8.00	2.47	3.00
Farmers' Choice	8.00	2.06	3.00
Marietta Best for Tobacco.....	8.00	2.06	3.00
Marietta Sweet Potato Special.....	8.00	2.06	3.00
Marietta Special Potato.....	8.00	1.65	10.00
Marietta Fruit and Root Special.....	8.00	1.65	5.00
Marietta Fertilizer, No. 823.....	8.00	1.65	3.00
Marietta Guano	8.00	1.65	2.00
Marietta Solid South.....	8.00	1.65	2.00
Marietta Golden Grain Grower.....	8.00	....	4.00
Marietta Manure Substitute	6.00	3.30	4.00
McLean's Magic Mover.....	3.00	8.23	2.00
Tankage	2.00	8.24	....
Sulphate of Ammonia .....	....	20.00	....
Nitrate of Soda .....	....	14.81	....
Muriate of Potash.....	....	....	50.00
Sulphate of Potash .....	....	....	50.00
German Kainit .....	....	....	12.00

The MacMurphy Co., Charleston, S. C.—

High Grade Acid Phosphate, 14 Per Cent.....	14.00	....	....
Acid Phosphate	13.00	....	....
Acid Phosphate and Potash	12.00	....	1.00
Acid Phosphate and Potash	11.00	....	1.00
Acid Phosphate and Potash	10.00	....	5.00
Acid Phosphate and Potash	10.00	....	4.00
Acid Phosphate and Potash	10.00	....	2.00
Wilcox & Gibbs Co.'s Manipulated Guano....	9.00	2.26	2.00
Special Cotton and Corn 9-2-2.....	9.00	1.65	2.00
Special 8-4-6 Guano	8.00	3.29	6.00
Special 8-4-4 Cotton Guano.....	8.00	3.29	4.00
Special 8-4-4 Tobacco Guano	8.00	3.29	4.00
Special 8-3-3 Cotton and Corn.....	8.00	2.47	3.00
Special 8-3-3 Tobacco Guano.....	8.00	2.47	3.00
Standard 8-2½-1 Guano	8.00	2.06	1.00
Special 8-2-2 Guano	8.00	1.65	2.00
Nitrate of Soda.....	....	14.81	....
Muriate of Potash .....	....	....	48.00
Sulphate of Potash .....	....	....	48.00

Marlboro Fertilizer Co., Bennettsville, S. C.—

Marlboro Perfection Acid Phosphate.....	16.00	....	....
Nitrate of Soda	14.80	....	....
Marlboro High Grade Acid Phosphate.....	14.00	....	....

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Marlboro Standard Acid Phosphate.....	13.00	....	....
Marlboro Perfection	8.00	3.29	4.00
Marlboro Special	8.00	3.29	4.00
Farmers Mixture	8.00	3.29	4.00
Marlboro High Grade	8.00	2.47	3.00
Marlboro Excelsior	8.00	2.47	3.00
Marlboro Complete Fertilizer	7.00	2.47	12.00
Farmers Special Mixture	6.00	2.47	2.50
Marlboro Top Dresser	4.00	8.25	3.00
Muriate of Potash .....	....	....	48.00
Marlboro German Kainit .....	....	....	12.00

North Carolina Cotton Oil Co., Wilmington, N. C.—

High Grade Acid Phosphate.....	16.00	....	....
Wilmington Bone and Potash.....	10.00	....	4.00
Pate's High Grade	9.00	2.47	3.00
Cockrell & Williams' Cotton Grower.....	9.00	2.27	2.00
Wilmington Mortgage Lifter	9.00	2.27	2.00
Wilmington's Pride	8.00	4.12	7.00
Wilmington's Truck Grower	8.00	3.30	4.00
Bullock's High Grade	8.00	3.30	4.00
Wilmington's Full Value	8.00	3.30	4.00
Wilmington Fruit Grower	8.00	2.47	10.00
Best Tobacco Grower	8.00	2.47	7.50
John's Special	8.00	2.47	4.00
Bullock's Cotton Grower	8.00	2.47	4.00
Wilmington Farmer Boy	8.00	2.47	4.00
Wilmington High Grade	8.00	2.47	3.00
Wilmington Leader	8.00	2.47	3.00
Clute's Cotton Grower.....	8.00	2.47	3.00
L. P. B. Special	8.00	2.47	3.00
Carter's Lifter	8.00	2.47	3.00
Lewis's Special	8.00	2.47	3.00
Cooper's Special	8.00	2.47	3.00
The Stone Company Special.....	8.00	2.47	3.00
Clute's Cotton Grower	8.00	2.47	3.00
Wilmington Leader	8.00	2.47	3.00
Wilmington High Grade	8.00	2.47	3.00
L. P. B. Special	8.00	2.47	3.00
Lewis's Special	8.00	2.47	3.00
Carter's Lifter	8.00	2.47	3.00
Wilmington Standard	8.00	2.47	2.50
Pate's Special	8.00	2.47	2.00
Currie's Crop Grower	8.00	2.06	4.00
Wilmington Tobacco Grower	8.00	2.06	3.00
Wilmington Banner	8.00	1.65	3.00
Clark's Special	8.00	1.65	3.00
Maultsby's Cotton Grower	8.00	1.65	3.00
Wilmington Cotton Grower	8.00	1.65	2.00
Wilmington Special	8.00	1.65	2.00
Wilmington Cotton Mixture	7.00	2.47	5.00
High Grade Tobacco	6.00	3.30	10.00
Wilmington Headlight	6.00	3.30	8.00
Wilmington High Grade Top Dresser.....	4.50	7.40	3.00
Dried Blood .....	....	16.00	....
Nitrate of Soda .....	....	14.80	....
Wilmington Special Top Dresser.....	....	7.40	3.00
H. G. Ground Tankage.....	....	7.00	....
Muriate of Potash .....	....	....	50.00
Sulphate of Potash .....	....	....	48.00
Kainit .....	....	....	12.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
<i>North Carolina Cotton Oil Co., Raleigh, N. C.—</i>			
Raleigh Standard Guano	8.00	2.26	2.00
<i>North Carolina Cotton Oil Co., Charlotte, N. C.—</i>			
Dixie Standard	8.00	2.48	3.00
Majestic	8.00	1.65	2.00
<i>North Carolina Cotton Oil Co., Henderson, N. C.—</i>			
Pride of Vance Tobacco Fertilizer.....	9.00	2.47	3.00
Unedit Tobacco Fertilizer	9.00	2.47	3.00
Henderson Tobacco Fertilizer	9.00	2.47	3.00
Franklin Tobacco Fertilizer.....	9.00	2.47	3.00
Two in One	8.00	3.29	4.00
Curriu's Special for Tobacco.....	8.00	3.29	4.00
Henderson High Grade	8.00	2.47	3.00
McKinne Mixture	8.00	2.26	3.25
Brewer's Special	8.00	2.26	2.00
American Pet	8.00	2.26	2.00
Henderson Cotton Grower	8.00	1.65	2.00
Franklin Cotton Grower	8.00	1.65	2.00
Unedit Cotton Grower.....	8.00	1.65	2.00
Vance Cotton Grower	8.00	1.65	2.00
<i>Nitrate Agencies Co., New York, Baltimore, Savannah, Charleston, and Norfolk—</i>			
Basic Slag	Total 17.00	....	....
Acid Phosphate	16.00	....	....
Acid Phosphate	14.00	....	....
Nitrate of Soda .....	....	15.00	....
Muriate of Potash.....	....	....	50.00
Sulphate of Potash .....	....	....	48.00
Manure Salts .....	....	....	20.00
Kainit .....	....	....	12.00
<i>New Bern Cotton Oil and Fertilizer Mills, New Bern, N. C.—</i>			
Thomas Phosphate	Total 18.00	....	....
Bone Meal	Total 16.00	2.47	....
16 Per Cent Acid Phosphate.....	16.00	....	....
14 Per Cent Acid Phosphate.....	14.00	....	....
Special Corn and Peanut Grower.....	11.00	....	2.00
High Grade Bone and Potash.....	10.00	....	4.00
Carteret Bone and Potash.....	10.00	....	2.00
Greene County Tobacco Fertilizer.....	9.00	2.47	5.00
Oriole Tobacco Grower	8.00	3.30	4.00
Harvey's Special Meal and Fish Guano.....	8.00	2.47	3.00
Special C. S. M. Mixture.....	8.00	2.47	3.00
Foy's High Grade Fertilizer.....	8.00	2.47	3.00
Lenoir Bright Leaf Tobacco Grower.....	8.00	2.47	3.00
Pitt's Prolific Golden Tobacco Guano.....	8.00	2.47	3.00
Favorite Cotton Grower	8.00	2.27	2.00
Onslow's Farmers' Reliance Guano	8.00	2.06	3.00
Jones County Premium Crop Grower.....	8.00	2.06	3.00
Craven Cotton Guano	8.00	1.65	2.00
Greene County Standard Fertilizer.....	8.00	1.65	2.00
Dunn's Standard Truck Grower.....	7.00	5.77	7.00
Ives' Irish Potato Guano.....	7.00	4.12	7.00
Eureka Tobacco Fertilizer	6.00	3.30	7.00
Pamlico Electric Top Dresser.....	5.00	8.25	2.50
Wooten's Special Tobacco Guano	4.00	3.30	6.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Sulphate of Ammonia		20.62	....
Nitrate of Soda		15.67	....
Ground Blood		13.20	....
Ground Tankage		9.90	....
Eureka Top Dresser		8.25	3.00
High Grade Fish Scrap.....		8.25	....
Sulphate of Potash			50.00
Muriate of Potash			48.00
Genuine German Kainit			12.00

Norfolk Fertilizer Co., Norfolk, Va.—

Pure Ground Bone.....Total	20.00	3.70	....
Oriana 16 Per Cent Acid Phosphate.....	16.00	....	....
Whitney H. G. Acid Phosphate.....	16.00	....	....
Oriana 14 Per Cent Acid Phosphate.....	14.00	....	....
Oriana Wheat Grower	10.00	....	4.00
Shenandoah Wheat Mixture	10.00	....	3.00
Young's Grain Grower	10.00	....	2.00
Oriana Bone and Potash.....	10.00	....	2.00
Oriana C. S. M. Special.....	9.00	2.26	2.00
Oriana Complete Fertilizer	8.00	3.29	4.00
Oriana First Step Tobacco Guano.....	8.00	3.29	4.00
Oriana Tobacco Guano	8.00	2.47	3.00
Oriana for Cotton	8.00	2.47	3.00
Oriana Bright Leaf Guano.....	8.00	2.06	3.00
Oriana Cotton Guano	8.00	1.65	2.00
Oriana Crop Grower	8.00	1.65	2.00
Mayodan Valley Wheat Grower.....	8.00	....	4.00
Oriana Special Mixture	6.00	4.11	5.00
Oriana Truck Guano	5.00	5.76	5.00
Pine Top Special Crop Grower.....	5.00	1.65	6.00
Nitrate of Soda Mixture for Top Dressing			
Cotton	4.00	8.23	2.00
Oriana High Grade Tobacco Guano.....	4.00	3.29	6.00
Nitrate of Soda .....	....	15.00	....
Dry Ground Fish.....	....	8.23	....
Norfolk Top Dresser .....	....	7.40	3.00
Animal Tankage .....	....	5.76	....
Muriate of Potash .....	....	....	49.00
Sulphate of Potash .....	....	....	48.00
Genuine German Kainit .....	....	....	12.00

Navassa Guano Co., Wilmington, N. C.—

Pure Raw Bone	22.50	3.71	....
Thomas Phosphate	17.00	....	....
Navassa 17 Per Cent Acid Phosphate.....	17.00	....	....
Navassa 16 Per Cent Acid Phosphate.....	16.00	....	....
Navassa Acid Phosphate	14.00	....	....
Navassa Dissolved Bone	13.00	....	....
Navassa Wheat Belt Special	12.00	....	6.00
Navassa Special Grain Mixture.....	12.00	....	5.00
Navassa Special Wheat Mixture.....	12.00	....	4.00
Navassa Gray Land Mixture.....	12.00	....	4.00
Navassa Acid Phosphate	12.00	....	....
Maxim Guano	10.00	2.47	2.00
Corona Guano	10.00	1.65	2.00
Johnston County Bone and Potash.....	10.00	....	5.00
Navassa Wheat and Grass Grower.....	10.00	....	4.00
Navassa Dissolved Bone with Potash.....	10.00	....	4.00
Navassa Wheat Mixture	10.00	....	2.25
Navassa Dissolved Bone with Potash.....	10.00	....	2.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Navassa Fish Guano	9.00	2.47	3.00
Robeson County Special	9.00	2.47	3.00
Navassa Big Boll Special	9.00	2.26	2.00
Navassa Manipulated Guano	9.00	2.26	2.00
Osceola Guano	9.00	1.65	3.00
Cape Fear Meal Mixture	9.00	1.65	3.00
Harvest Queen Fertilizer	9.00	1.65	2.00
Navassa Complete Fertilizer	9.00	1.65	1.00
Long's Wheat and Grain Guano.....	9.00	.82	3.00
Farmers Mixture	8.75	1.85	4.00
Navassa Universal Fertilizer	8.50	2.06	1.00
Enterprise Strawberry Grower	8.00	3.29	11.00
Navassa Special Meal Fertilizer.....	8.00	3.29	4.00
Coree Tobacco Guano	8.00	3.29	4.00
Navassa High Grade Fertilizer.....	8.00	3.29	4.00
Navassa Special Truck Guano.....	8.00	3.29	4.00
Navassa Complete Tobacco Mixture.....	8.00	2.47	10.00
Navassa Carib Guano	8.00	2.47	10.00
Navassa Standard Tobacco Guano.....	8.00	2.47	7.00
Navassa Blood and Meal Mixture.....	8.00	2.47	5.00
Maultsby's Tobacco Guano	8.00	2.47	5.00
Navassa Big Cotton Grower.....	8.00	2.47	4.00
Orton Guano	8.00	2.47	4.00
Navassa High Grade Guano	8.00	2.47	3.00
Clarendon Tobacco Guano	8.00	2.47	3.00
Navassa Standard Meal Guano.....	8.00	2.47	3.00
Navassa Cotton-seed Meal Special 3 Per Cent Guano	8.00	2.47	2.00
Navassa Strawberry Top Dressing.....	8.00	2.06	4.00
Sullivan Tobacco Special	8.00	2.06	3.00
Mogul Guano	8.00	2.06	3.00
Maultsby's Meal Mixture	8.00	2.06	3.00
Navassa Guano for Tobacco.....	8.00	2.06	2.00
Ammoniated Soluble Navassa Guano.....	8.00	2.06	2.00
Brooks' Ammoniated Guano	8.00	2.06	1.50
Navassa Fruit Grower Fertilizer.....	8.00	1.65	6.00
Harvest King Guano	8.00	1.65	3.00
Clark's Special Cotton-seed Meal Guano.....	8.00	1.65	3.00
Navassa Grain Fertilizer	8.00	1.65	2.00
Navassa Cotton-seed Meal Guano.....	8.00	1.65	2.00
Navassa Cotton Fertilizer	8.00	1.65	2.00
Oconeechee Tobacco Guano	8.00	1.65	2.00
Navassa Dissolved Bone with Potash.....	8.00	....	4.00
Navassa Lettuce Grower Fertilizer.....	7.00	5.76	7.00
Maultsby's Tobacco Special	7.00	4.12	10.00
Navassa Root Crop Fertilizer.....	7.00	4.12	7.00
Navassa Creole Guano	6.00	4.12	7.00
Navassa Special for Tobacco.....	6.00	3.29	7.00
Navassa H. G. Top Dresser.....	4.00	7.82	4.00
Navassa Top Dresser	4.00	6.17	2.50
Navassa Quick Results Top Dresser.....	4.00	4.94	2.50
Navassa Special Top Dresser.....	2.00	5.76	2.50
Sulphate of Ammonia .....	....	20.59	....
Nitrate of Soda .....	....	14.82	....
Blood .....	....	13.15	....
High Grade Tankage .....	....	8.25	....
Fish Scrap .....	....	8.24	....
Navassa Big Lick Top Dresser .....	....	7.41	3.00
Muriate of Potash .....	....	....	48.00
Sulphate of Potash .....	....	....	48.00
Genuine German Kainit .....	....	....	12.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
<i>G. Ober & Sons Co., Baltimore, Md.—</i>			
Pure Raw Bone Meal.....Total	21.00	3.71	....
Ober's High Grade Acid Phosphate.....	16.00	....	....
Ober's Dissolved Bone Phosphate.....	14.00	....	....
Ober's Standard Potash Compound.....	12.00	....	5.00
Ober's Dissolved Animal Bone.....	10.00	2.47	....
Ober's Acid Phosphate with Potash.....	10.00	....	4.00
Ober's Dissolved Bone, Phosphate and Potash.	10.00	....	2.00
Ober's Special High Grade Fertilizer.....	9.00	2.47	3.00
Ober's Special Ammoniated Dissolved Bone..	9.00	1.65	2.00
Ober's Farmers' Mixture	9.00	.82	2.00
Ober's H. G. Fertilizer.....	8.00	3.30	4.00
Ober's Special Compound for Tobacco.....	8.00	2.47	3.00
Ober's Special Compound for All Crops.....	8.00	2.47	3.00
Cooper's Pungo Guano	8.00	2.06	2.00
Ober's Standard Tobacco Fertilizer.....	8.00	1.65	2.00
Ober's Special Cotton Compound.....	8.00	1.65	2.00
Ober's Soluble Ammoniated Superphosphate of Lime	8.00	1.65	2.00
Ober's Stag Guano	8.00	.82	4.00
Ober's Acid Phosphate with Potash.....	8.00	....	4.00
Ground Fish	7.30	9.00	....
Ober's Complete Vegetable Fertilizer.....	7.00	4.12	5.00
Ober's Complete Fertilizer	6.00	4.12	6.00
Red Seal Special Tobacco Guano.....	6.00	2.47	7.00
Ober's Special Tobacco Bed Fertilizer, 10 Per Cent	4.00	8.25	3.00
Nitrate of Soda .....	....	15.50	....
Ground Blood .....	....	13.00	....
Sulphate of Potash .....	....	....	48.00
Muriate of Potash .....	....	....	48.00
Kainit .....	....	....	12.00
<i>Ocean Fisheries Co., Wilmington, N. C.—</i>			
Machine Dried Fish Scrap	6.00	8.00	....
Acidulated Fish Scrap	3.00	5.00	....
<i>Old Buck Guano Co., Richmond, Va.—</i>			
Old Buck 16 Per Cent Acid Phosphate.....	16.00	....	....
Old Buck 14 Per Cent Acid Phosphate.....	14.00	....	....
Old Buck Bristol Alkaline Bone	12.00	....	5.00
Old Buck English Tobacco, Potato and Truck	10.00	3.30	6.00
Old Buck Corn Guano	10.00	1.65	4.00
Old Buck German 10 and 4 Mixture.....	10.00	....	4.00
Old Buck Hartford Bone and Potash.....	10.00	....	2.00
Old Buck James River Peanut and Corn.....	9.00	1.00	3.00
Old Buck Florida General Trucker	8.00	3.30	4.00
Old Buck Test Farm Tobacco	8.00	2.47	4.00
Old Buck Quincy Tobacco and Garden	8.00	2.47	3.00
Old Buck High Prize Tobacco	8.00	2.05	3.00
Old Buck Saxon Corn and Tobacco.....	8.00	1.65	2.00
Old Buck Warsaw Guano	8.00	1.65	2.00
Old Buck Water Soluble Top Dresser.....	4.00	8.23	2.00
<i>The Pocomoke Guano Co., Norfolk, Va.—</i>			
Pure Ground Bone	20.00	3.70	....
Superb Acid Phosphate	16.00	....	....
Peerless Acid Phosphate	14.00	....	....
Pocomoke 12-5 Bone and Potash.....	12.00	....	5.00
Alkali Bone	11.00	....	2.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Pocomoke Bone and Potash Mixture.....	10.00	....	4.00
10-2 Potash Mixture	10.00	....	2.00
Stephenson Special	9.00	4.11	4.00
Monticello Animal Bone Fertilizer.....	9.00	1.85	4.00
Cinco Tobacco Guano	8.50	2.06	2.50
Pocomoke Superphosphate	8.50	1.65	2.00
Electric Crop Grower	8.50	1.65	2.00
Garrett's Grape Grower	8.00	3.29	10.00
Cobb's Special	8.00	3.29	6.00
Faultless Ammoniated Superphosphate	8.00	3.29	4.00
Monarch Tobacco Grower	8.00	2.47	3.00
Harvey's High Grade Monarch.....	8.00	2.47	3.00
Pocomoke Sweet Potato Grower.....	8.00	2.47	3.00
CCC Crescent Complete Compound.....	8.00	1.65	3.00
Pamlico Superphosphate	8.00	1.65	2.00
Pocomoke Wheat, Corn and Peanut Manure..	8.00	1.00	4.00
Pocomoke Defiance Bone and Potash.....	8.00	....	4.00
Pocomoke Truck Grower 5 Per Cent.....	7.00	4.11	5.00
Standard Truck Guano	7.00	4.11	5.00
Seaboard Popular Trucker	6.00	5.76	5.00
Freeman's 7 Per Cent Irish Potato Grower...	6.00	5.76	5.00
Exum's Special	6.03	2.47	3.50
Coast Line Truck Guano.....	5.00	8.23	3.00
Pocomoke Top Dresser	4.00	8.23	2.00
Smith's Special Formula	4.00	3.29	6.00
Nitrate of Soda .....	....	15.00	....
Dry Ground Fish .....	....	8.23	....
Special Top Dresser.....	....	7.41	3.00
Muriate of Potash .....	....	....	49.00
Sulphate of Potash .....	....	....	48.00
Genuine German Kainit .....	....	....	12.00

Peruvian Guano Corporation, Charleston, S. C.—

Genuine Peruvian Guano Pleione No. 1.....	20.00	3.08	3.25
Thomas Phosphate (Basic Slag).....Total	18.00	....	....
Peruvian H. G. Acid Phosphate.....	16.00	....	....
Genuine Peruvian Guano Simetra No. 1.....	14.00	3.29	2.00
H. G. Genuine Peruvian Guano Ex. S. S. Chipana	14.00	3.21	2.00
H. G. Genuine Peruvian Guano Ex. S. S. Condor	14.00	2.46	2.00
Genuine Peruvian Guano Simetra No. 2.....	14.00	2.46	2.00
Genuine Peruvian Guano Pleione No. 2.....	14.00	2.30	2.50
Peruvian Acid Phosphate	14.00	....	....
Genuine Peruvian Guano Madura No. 2.....	13.00	4.93	2.00
H. G. Genuine Peruvian Guano Ex. S. S. Capac	13.00	4.93	2.00
Peruvian Acid Phosphate	13.00	....	....
Genuine Peruvian Guano Madura No. 1.....	12.00	9.45	3.00
Genuine Peruvian Guano Ex. S. S. Marie Teresa	12.00	2.75	1.80
"Chincha Island" High Grade Peruvian Mix- ture	10.00	3.29	4.00
"Penguin" Peruvian Compound.....	10.00	2.46	3.00
Petrel Peruvian Mixture	10.00	2.00	4.00
"Albatross" Peruvian Mixture.....	10.00	1.64	4.00
H. G. Peruvian Mixture.....	10.00	1.64	2.00
Special Peruvian Wheat Mixture.....	10.00	1.64	2.00
Peruvian Potash Special	10.00	....	4.00
Sea Island Peruvian Mixture.....	9.00	2.46	3.00
Cuzco Peruvian Mixture	9.00	1.64	6.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Laranago Peruvian Formula	9.00	1.64	2.00
Peruvian Top Dresser Total	8.00	6.99	3.50
Bellestas H. G. Peruvian Mixture.....	8.00	3.29	4.00
Cormorant H. G. Peruvian Mixture.....	8.00	2.46	4.00
Lobos Peruvian Mixture	8.00	2.46	3.00
Piguero Peruvian Compound.....	8.00	2.46	2.00
Alcatroz Peruvian Corn Grower.....	8.00	1.64	3.00
Standard Peruvian Mixture	8.00	1.64	2.00
Excelsior Peruvian Formula	8.00	.83	3.00
Peruvian Acid Potash Mixture.....	8.00	....	4.00
Nitrate of Soda .....	....	14.80	....
Dried Blood .....	....	13.10	....
Fish Scrap .....	....	8.20	....
Muriate of Potash .....	....	....	49.00
Sulphate of Potash .....	....	....	48.00
Genuine German Kainit .....	....	....	12.00

Z. V. Pate, Laurel Hill, N. C.—

Cotton Fertilizer	9.00	2.47	3.00
Tuxedo Fertilizer	8.00	2.47	3.00
High Grade Fertilizer	7.00	3.29	5.00
Cotton-seed Meal Fertilizer	6.50	2.47	2.50

Pan-American Fertilizer Co., Norfolk, Va.—

Pan-American 16 Per Cent Acid Phosphate...	16.00		
Pan-American Harvest Winner	11.00	....	5.00
Pan-American Ideal Mixture	10.00	....	4.00
Pan-American 10 and 2	10.00	....	2.00
Pan-American Favorite Compound.....	8.00	3.29	4.00
Pan-American Special Cotton Grower	8.00	2.47	3.00
Pan-American Universal Phosphate	8.00	1.65	2.00
Pan-American Peanut and Grain Special....	8.00	1.03	4.00
Pan-American Special	7.00	5.76	5.00
Pan-American 6 Per Cent Trucker	7.00	4.94	5.00
Pan-American Potato, Tobacco and Truck....	7.00	4.11	5.00
Pan-American Norfolk Co. Special	7.00	3.29	5.00
Pan-American P. Trucker	6.00	5.76	6.00
Pan-American Universal Trucker	6.00	5.76	5.00
Pan-American Carolina Trucker	6.00	4.11	7.00
Pan-American Dixie Standard	6.00	4.11	5.00
Pan-American Tip Top Dresser	5.00	8.23	2.00
Pan-American Potato and Truck Special....	5.00	5.76	5.00
Pan-American Truckers' Ideal Guano	5.00	4.94	5.00
Pan-American Universal Top Dresser	3.00	8.23	4.00

Pamlico Chemical Co., Washington, N. C.—

Pamlico 16 Per Cent Acid Phosphate.....	16.00	....	....
Pamlico Bone Phosphate	14.00	....	....
Martin County Peanut Guano	10.00	1.23	4.00
Pamlico Peanut Guano	10.00	....	4.00
Dissolved Bone and Potash.....	10.00	....	2.00
Pitt County High Grade Tobacco Guano....	9.00	2.88	10.00
Blount's Special Cotton Grower	9.00	2.27	2.00
Prosperity Cotton Grower	9.00	2.26	2.00
Bissett's Special Cotton Grower	9.00	2.06	4.00
United States High Grade Tobacco Guano....	8.00	4.12	10.00
Pamlico 8-5-10 Guano	8.00	4.12	10.00
Cowell's Great Potato Grower	8.00	4.12	7.00
Pamlico 8-4-4 Guano	8.00	3.30	4.00
Bull's Eye Tobacco Grower.....	8.00	3.30	4.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Early Sweet Potato	8.00	2.47	10.00
Pamlico High Grade Tobacco Grower.....	8.00	2.47	5.00
Success Guano Total	8.00	2.47	3.00
Tobacco Growers' Friend	8.00	2.47	3.00
Farmers' Best Guano	8.00	2.06	3.00
Quick Grower	8.00	2.06	3.00
Rust Proof Cotton Guano.....	8.00	1.65	3.00
Crop Guano	8.00	1.65	2.00
Pamlico Bone and Fish.....	8.00	1.65	2.00
Pamlico Cotton Guano	8.00	1.65	2.00
Pamlico 7-7-7	7.00	5.77	7.00
Pamlico 7-5-8 Guano	7.00	4.12	8.00
Pamlico Special Irish Potato Guano.....	7.00	4.12	7.00
Pamlico Special Sweet Potato Guano	7.00	4.12	5.00
Pamlico Favorite Potato Guano	7.00	4.12	5.00
H. G. Truck Guano	7.00	4.12	5.00
Potato Favorite Guano	7.00	3.30	7.00
6-4-7 Tobacco Guano	6.00	3.30	7.00
Faukland H. G. Tobacco Guano	6.00	2.47	6.00
Cowell's Great Cabbage Grower	5.00	8.25	2.50
4-4-6 Tobacco Guano	4.00	3.30	6.00
4-3-5 Guano	4.00	2.47	5.00
Cereal Top Dresser	3.00	7.42	3.00
Sulphate of Ammonia .....	....	20.62	....
Nitrate of Soda .....	....	14.85	....
Quickstep Top Dresser .....	....	8.25	4.00
Pamlico Ground Fish .....	....	8.25	....
Sulphate of Potash .....	....	....	55.00
Muriate of Potash .....	....	....	48.00
German Kainit .....	....	....	12.00

*Planters Fertilizer and Phosphate Co., Charleston,
S. C.—*

16 Per Cent Acid Phosphate.....	16.00	....	....
Planters' High Grade Acid Phosphate.....	14.00	....	....
Excelsior H. G. Acid Phosphate.....	14.00	....	....
Planters' Soluble Bone	13.00	....	....
Planters' Bone and Potash	12.00	....	1.00
Planters' Special Meal	10.00	1.65	2.00
Planters' Grain Grower	10.00	.82	3.00
Special Mixture	10.00	....	5.00
Planters' Acid and Potash	10.00	....	4.00
Planters' Bone and Potash	10.00	....	2.00
Planters' Blood and Fish Guano.....	9.00	1.65	3.00
Planters' Special Mixture	9.00	.82	3.00
Planters' Special Mixture	8.00	4.12	5.00
Planters' Special Cotton Fertilizer	8.00	3.29	4.00
Planters' Bright Tobacco Fertilizer	8.00	3.29	4.00
Planters' Cotton and Corn Fertilizer.....	8.00	2.47	4.00
Planters' H. G. Tobacco Fertilizer.....	8.00	2.47	3.00
Planters' Soluble Guano	8.00	2.47	3.00
Planters' Fertilizer	8.00	2.06	2.00
Planters' Standard Fertilizer	8.00	1.65	2.00
Planters' Bone and Potash	8.00	....	4.00
Special Mixture	7.00	5.76	7.00
Special Mixture	7.00	4.11	7.00
Special Mixture	7.00	4.11	5.00
Planters' H. G. Top Dresser.....	4.00	6.18	2.50
Nitrate of Soda .....	....	14.83	....
Planters' Muriate of Potash.....	....	....	48.00
Sulphate of Potash .....	....	....	48.00
Planters' German Kainit .....	....	....	12.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
<i>Pearsall & Co., Wilmington, N. C.—</i>			
Pearsall's H. G. Acid Phosphate.....	16.00	....	....
Pearsall's H. G. Acid Phosphate.....	14.00	....	....
Pearsall's Bone and Potash.....	10.00	....	4.00
Hall's Special	8.00	3.30	5.00
Davis's Special	8.00	3.30	4.00
Pearsall's Bone Meal and Fish.....Total	8.00	3.30	4.00
Pearsall's Fish and Potash Compound.....	8.00	3.30	4.00
Pearsall's Berry Guano.....	8.00	2.47	10.00
Pearsall's Fernside Tobacco Guano.....	8.00	2.47	7.00
Pearsall's Useme Guano.....	8.00	2.47	3.00
Pearsall's High Grade Tobacco.....	8.00	2.47	3.00
Pearsall's F. F. F. G.....	8.00	2.47	3.00
Oliver's Cotton and Corn.....	8.00	2.07	4.00
Currie's Cotton and Corn Guano.....	8.00	1.65	3.00
Pearsall's Corn Guano.....	8.00	1.65	3.00
Pearsall's Two Step Guano.....	8.00	1.65	2.00
Pearsall's Potato and Truck Guano.....	6.00	4.12	7.00
Pearsall's Complete Top Dresser.....	3.00	7.43	3.00
Nitrate of Soda.....	....	14.85	....
Pearsall's Ground Fish.....	....	8.47	....
Pearsall's Top Dresser.....	....	7.42	3.00
Bone Meal .....	....	3.30	....
Muriate of Potash.....	....	....	48.00
Sulphate of Potash.....	....	....	48.00
Pearsall's German Kainit.....	....	....	12.00
<i>Pacific Guano Co., Charleston, S. C.—</i>			
Standard Pacific Acid Phosphate.....	12.00	....	....
Standard Soluble Pacific Guano.....	8.50	1.65	2.00
High Grade Pacific Fertilizer.....	8.00	2.46	3.00
<i>Powhatan Chemical Co., Richmond, Va.—</i>			
Pure Animal Bone.....Total	25.00	2.47	....
Pure Raw Bone Meal.....Total	22.50	3.70	....
Magic Dissolved Bone Phosphate.....	16.00	....	....
High Grade Acid Phosphate.....	14.00	....	....
Powhatan Acid Phosphate.....	13.00	....	....
Magic Corn Special	12.00	1.00	2.00
Magic Wheat Special	12.00	1.00	2.00
High Grade Bone and Potash Mixture.....	12.00	....	5.00
Virginia Dissolved Bone	12.00	....	....
Magic Corn Grower	10.00	.82	1.00
Magic Crop Grower	10.00	.82	1.00
Magic Bone and Potash Mixture.....	10.00	....	4.00
Bone and Potash Mixture.....	10.00	....	2.00
Austin's Special Fertilizer.....	9.00	2.47	6.00
Guilford Special Tobacco Fertilizer.....	9.00	2.47	6.00
Ralling's Special Fertilizer	9.00	2.47	2.00
Economic Cotton Grower	9.00	2.26	2.00
Johnson's Best Fertilizer	9.00	2.06	5.00
Holt's Magic Fertilizer	9.00	2.06	5.00
Union Magic Fertilizer	9.00	1.85	4.00
North Carolina Favorite	9.00	1.65	3.00
Powhatan Special Fertilizer	9.00	1.65	2.00
Magic Mixture	9.00	1.65	1.00
Magic Wheat Grower	9.00	.82	2.00
King Trucker	8.00	4.11	5.00
Tomlinson's Best Fertilizer	8.00	3.70	7.00
Copeland's Magic Fertilizer	8.00	3.29	8.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
North State Special	8.00	3.29	4.00
Tomlinson's Favorite Fertilizer	8.00	2.88	5.00
Special Fertilizer	8.00	2.47	7.00
Tomlinson's Magic Fertilizer.....	8.00	2.47	7.00
Tomlinson's Special Fertilizer	8.00	2.47	5.00
Magic Fertilizer	8.00	2.47	4.00
P. C. Co.'s Hustler	8.00	2.47	3.00
King Brand Fertilizer	8.00	2.06	3.00
White Leaf Tobacco Fertilizer.....	8.00	2.06	3.00
Powhatan Peanut Fertilizer	8.00	1.65	4.00
Magic Cotton Grower	8.00	1.65	2.00
Magic Special Fertilizer	8.00	1.65	2.00
Magic Tobacco Grower	8.00	1.65	2.00
Magic Peanut Special	8.00	.82	4.00
Magic Grain Special	8.00	.82	4.00
Magic Peanut Grower	8.00	....	4.00
Magic Grain and Grass Grower.....	8.00	....	4.00
Powhatan Bone and Potash Mixture.....	8.00	....	4.00
Powhatan Trucker	7.00	4.94	5.00
Copeland's Best Fertilizer	7.00	2.88	7.00
Copeland's Special Fertilizer	6.00	3.29	7.00
Allen's Special Tobacco Fertilizer.....	6.00	1.65	5.00
Powhatan Top Dresser	4.00	8.23	4.00
Magic Top Dresser	4.00	6.17	2.50
Sulphate of Ammonia .....	....	19.75	....
Nitrate of Soda .....	....	15.63	....
Tomlinson Nitrate Muriate Special.....	....	9.87	5.00
Muriate of Potash .....	....	....	50.00
Sulphate of Potash .....	....	....	48.00
High Grade German Potash.....	....	....	16.00
Pure German Kainit .....	....	....	12.00

Pine Level Oil Mill Co., Pine Level, N. C.—

Pine Level 16 Per Cent Acid Phosphate.....	16.00		
Pine Level 14 Per Cent Acid Phosphate.....	14.00	....	....
Bone and Potash Mixture.....	11.00	....	5.00
Bone and Potash Mixture.....	10.00	....	4.00
Sutton's Potato Guano	9.00	2.88	5.00
Pine Level Prolific Guano.....	9.00	2.26	2.00
Xantho Tobacco Guano	8.00	3.30	4.00
Oliver's Truck Grower Guano.....	8.00	3.30	4.00
Hale's Special for Tobacco.....	8.00	2.47	4.00
Pine Level High Grade Fertilizer.....	8.00	2.47	3.00
Cotton Grower Fertilizer for All Crops.....	8.00	1.65	2.00
Sand Hill Special	6.00	2.47	3.00
H. G. Top Dresser.....	3.00	6.03	6.00
Nitrate of Soda .....	....	14.88	....
Muriate of Potash .....	....	....	48.00
Sulphate of Potash .....	....	....	48.00
Genuine German Kainit .....	....	....	12.00

Patapsco Guano Co., Baltimore, Md.—

Patapsco Pure Raw Bone.....Total	21.51	3.70	....
Florida Soluble Phosphate	16.00	....	....
Patapsco Pure Dissolved S. C. Phosphate.....	14.00	....	....
Patapsco High Grade Phosphate and Potash..	11.00	....	5.00
Baltimore Soluble Phosphate	11.00	....	2.00
Patapsco 10 and 4 Potash Mixture.....	10.00	....	4.00
Patapsco Soluble Phosphate and Potash.....	10.00	....	2.00
Patapsco Guano for Tobacco.....	9.25	2.06	2.00
Patapsco Guano	9.25	2.06	2.00

Name and Address of Manufacturer and Name of Brand.	* Avail. Phos. Acid.	Nitrogen.	Potash.
Tankage Total	9.15	7.41	....
Patapsco Tobacco Fertilizer	9.00	2.47	3.00
Patapsco Cotton and Corn Special.....	9.00	2.06	5.00
Patapsco Cotton Growers' Special.....	9.00	1.65	3.00
Coon Brand Guano	9.00	.82	3.00
Patapsco Cotton and Tobacco Special.....	8.00	3.29	4.00
Patapsco Plant Food for Tobacco, Potatoes and Truck	8.00	2.47	5.00
Patapsco Gold Leaf C. S. M. Mixture.....	8.00	2.47	3.00
Choctaw Guano	8.00	2.47	3.00
Patapsco Special Tobacco Mixture.....	8.00	2.06	3.00
Unicorn Guano	8.00	2.06	3.00
Planters' Favorite	8.00	1.65	2.00
Sea Gull Ammoniated Guano.....	8.00	1.65	2.00
Grange Mixture, C. S. M. Base.....	8.00	1.65	2.00
Patapsco 7-7-7 Truck Guano.....	7.00	5.76	7.00
Patapsco Trucker for Early Vegetables.....	7.00	4.11	5.00
Money Maker Guano	7.00	3.70	6.00
Dry Ground Fish Total	6.00	8.23	....
Patapsco Potato Guano	6.00	4.11	7.00
Sulphate of Ammonia .....	....	20.16	....
Nitrate of Soda .....	....	15.00	....
Patapsco Top Dresser .....	....	7.41	3.00
Muriate of Potash .....	....	....	49.00
Sulphate of Potash .....	....	....	48.00
Genuine German Kainit .....	....	....	12.00

Pocahontas Guano Co., Lynchburg, Va.—

Fine Ground Bone Meal.....Total	23.00	2.47	....
Pure Raw Bone Meal.....Total	22.00	3.71	....
Carrington's S. C. Phosphate, Waukesha Brand	16.00	....	....
Imperial Dissolved S. C. Phosphate.....	14.00	....	....
Indian Special Grain and Grass Guano.....	12.00	....	5.00
Special Potash Mixture	10.00	....	5.00
Wabash Wheat Mixture	10.00	....	4.00
Carrington's Superior Grain Compound.....	10.00	....	2.00
Pocahontas Special Tobacco Fertilizer.....	9.00	2.47	3.00
High Grade 4 Per Cent Tobacco Compound			
Mohawk King.....	9.00	1.85	4.00
Yellow Tobacco Special	9.00	1.65	2.00
Standard Tobacco Guano, Old Chief Brand..	9.00	1.65	2.00
Planters' Special	9.00	.82	2.00
Indian Tobacco Grower	8.00	2.47	4.00
Farmers' Favorite Apex Brand.....	8.00	2.47	3.00
Special Truck Grower, Eagle Mount Brand...	8.00	2.06	6.00
Spot Cash Tobacco Compound.....	8.00	2.06	3.00
Truckers' Special	8.00	1.65	6.00
Carrington's Banner Brand Guano.....	8.00	1.65	2.00
A. A. Complete Champion Brand.....	8.00	1.00	3.00
Cherokee Grain Special	8.00	....	4.00
Nitrate of Soda .....	....	15.00	....
Muriate of Potash .....	....	....	49.00
Sulphate of Potash .....	....	....	48.00
Genuine German Kainit .....	....	....	12.00

Planters Cotton Seed Oil Co., Rocky Mount, N. C.—

Acid Phosphate	16.00	....	....
Acid Phosphate	14.00	....	....
J. P. D. Special	8.00	3.29	5.00
Gorham H. G.	8.00	3.29	4.00
Tar River Special	8.00	2.47	3.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Planters' C. S. Oil Co.'s Tobacco Guano.....	8.00	2.47	3.00
Planters' Pride for Cotton	8.00	1.65	2.00
Planters' C. S. Oil Co.'s Cotton Guano.....	8.00	1.65	2.00
Planters' Peanut Mixture	8.00	1.21	5.00
Planters' Special Potato Guano.....	7.00	4.12	5.00
Braswell's Excelsior	7.00	3.29	6.00
E. L. D. Special.....	7.00	2.47	3.00
Braswell's Special for Tobacco.....	7.00	2.26	3.50
Planters' Top Dresser	3.50	7.82	3.00
Nitrate of Soda .....	....	15.00	....
Ground Fish Scrap .....	....	8.23	....
Muriate of Potash .....	....	....	50.00
Sulphate of Potash .....	....	....	48.00
Genuine German Kainit .....	....	....	12.00

Piedmont-Mt. Airy Guano Co., Baltimore, Md.—

Piedmont Bone Meal	Total	21.00	3.29	
Piedmont 16 Per Cent Acid Phosphate.....	16.00	....	....	....
Piedmont 14 Per Cent Acid Phosphate.....	14.00	....	....	....
Piedmont Special Potash Mixture	10.00	....	....	5.00
Levering's Potashed Bone.....	10.00	....	....	4.00
Piedmont Farmers' Bone and Potash.....	10.00	....	....	2.00
Piedmont Farmers' Standard	9.00	1.65	....	2.00
Piedmont Essential Tobacco Compound	9.00	1.65	....	2.00
Levering's Ammoniated Bone	9.00	.82	....	3.00
Piedmont Unexcelled Guano.....	8.00	3.29	....	4.00
Piedmont Special Tobacco Guano.....	8.00	2.47	....	4.00
Piedmont High Grade Ammoniated Bone and Potash	8.00	2.47	....	3.00
Levering's Reliable Tobacco Guano.....	8.00	2.47	....	3.00
Piedmont Guano for Tobacco	8.00	2.06	....	3.00
Piedmont Guano for All Crops.....	8.00	2.06	....	3.00
Levering's Standard	8.00	1.65	....	3.00
Piedmont Bone and Peruvian Mixture.....	8.00	1.65	....	2.00
Piedmont Special for Cotton, Corn and Pea- nuts	8.00	1.65	....	2.00
Piedmont Cultivator Brand	8.00	1.65	....	2.00
Piedmont Red Leaf Tobacco Guano.....	8.00	1.65	....	2.00
Piedmont Farmers' Favorite	8.00	.82	....	4.00
Piedmont Star Bone and Potash.....	8.00	....	....	5.00
Piedmont 7-7-7 Truck Guano.....	7.00	5.76	....	7.00
Piedmont 5-7-5 Guano	7.00	4.12	....	5.00
Piedmont Special Truck Fertilizer	6.00	5.75	....	7.00
Piedmont Special Potato Guano	6.00	4.94	....	7.00
Piedmont Early Vegetable Manure	6.00	4.12	....	7.00
Piedmont Early Trucker	6.00	4.12	....	5.00
Piedmont Vegetable Compound	6.00	3.29	....	8.00
Piedmont 7 Per Cent Truck Guano.....	5.00	5.76	....	3.00
Piedmont Potato Producer	5.00	2.47	....	6.00
Nitrate of Soda .....	....	15.23	....	....
Boykin's Top Dresser .....	....	7.41	....	3.00
Muriate of Potash .....	....	....	....	50.00
Sulphate of Potash .....	....	....	....	48.00
German Kainit .....	....	....	....	12.00

The Quinncpiac Co., Charleston, S. C.—

Standard Quinncpiac Acid Phosphate.....	13.00	....	....
Standard Quinncpiac Pine Island Ammoniated Superphosphate	9.00	1.85	1.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
<i>The Robertson Fertilizer Co., Norfolk, Va.—</i>			
Robertson's Raw Bone Meal.....Total	21.00	3.71	....
High Peak Acid Phosphate.....	16.00	....	....
Scepter Brand Acid Phosphate.....	14.00	....	....
P. M. C. Acid Phosphate.....	13.00	....	....
J. W. S. Special Bone and Potash Mixture....	12.00	....	5.00
J. W. S. Alkaline Bone.....	10.00	....	5.00
Skyscraper Bone and Potash Compound.....	10.00	....	4.00
Level Run Dissolved Bone and Potash.....	10.00	....	2.00
Dodson's Choice H. G. Complete Manure.....	9.00	2.47	3.00
Robertson's 2 $\frac{3}{4}$ -9-2 Guano.....	9.00	2.26	2.00
Beaver Brand Soluble Guano.....	9.00	1.85	4.00
Robertson's Blood and Bone Mixture.....	9.00	1.00	2.00
P. M. C. High Grade Soluble Guano.....	8.00	4.12	7.00
J. W. S. Special Tobacco Guano.....	8.00	3.30	7.00
Wood's Winner H. G. Guano.....	8.00	3.30	4.00
Robertson's Soluble H. G. Manure.....	8.00	2.47	4.00
Old Kentucky High Grade Tobacco Manure..	8.00	2.47	3.00
Robertson's Special Formula for Tobacco...	8.00	2.47	3.00
Big Cropper High Grade Guano.....	8.00	2.47	3.00
Robertson's X-(T Ray) Tobacco Grower....	8.00	2.06	2.00
Robertson's Star Guano.....	8.00	1.65	5.00
Double Dollar Soluble Guano.....	8.00	1.65	2.00
Ten Strike Soluble Crop Grower.....	8.00	1.00	4.00
M. C. Special Bone and Potash Mixture....	8.00	....	4.00
Robertson 5 Per Cent Guano.....	7.00	4.12	5.00
Robertson's 7 Per Cent for Truck.....	6.00	5.77	5.00
Robertson's 5-6-7.....	6.00	4.12	7.00
Robertson's Tobacco Compound.....	4.00	3.30	6.00
Robertson's 10 Per Cent Truck Guano.....	2.00	8.25	2.00
Nitrate of Soda.....	....	14.85	....
Blood.....	....	13.20	....
Genuine German Kainit.....	....	....	12.00

F. S. Royster Guano Co., Norfolk, Va.—

Pure Raw Bone Meal.....Total	21.50	3.71	....
Arrow Brand Thomas Phosphate.....Total	18.00	....	....
Royster's H. G. 17 Per Cent Acid Phosphate..	17.00	....	....
Royster's H. G. 16 Per Cent Acid Phosphate..	16.00	....	....
Royster's 14 Per Cent Acid Phosphate.....	14.00	....	....
Royster's Dissolved Bone.....	13.00	....	....
Royster's 12 and 5 Bone and Potash Mixture..	12.00	....	5.00
Royster's XX Acid Phosphate.....	12.00	....	....
Royster's 11 and 5 Bone and Potash Mixture..	11.00	....	5.00
Royster's Cotton Special.....	10.00	3.30	4.00
Seminole High Grade Fertilizer.....	10.00	2.47	3.00
Royster's Special Formula "B".....	10.00	2.47	1.00
Royster's Soluble Guano.....	10.00	1.65	2.00
Haywood County Special Guano.....	10.00	.82	3.00
Royster's 10 and 6 Bone and Potash Mixture..	10.00	....	6.00
Royster's 10 and 5 Bone and Potash Mixture..	10.00	....	5.00
Royster's 10 and 4 Bone and Potash Mixture..	10.00	....	4.00
Royster's Bone and Potash for Grain.....	10.00	....	3.00
Royster's Bone and Potash Mixture.....	10.00	....	2.00
M. P. F. Mixture.....	9.50	3.30	5.00
Royster's 4-9-5 Special.....	9.00	3.30	5.00
Royster's Special Formula.....	9.00	2.47	5.60
Tomlinson's Special.....	9.00	2.47	5.00
Royster's Three Nine Four Special.....	9.00	2.47	4.00
Surry Special Tobacco Grower.....	9.00	2.47	3.00
Piedmont Special Cotton Grower.....	9.00	2.47	3.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Royster's Meal Mixture	9.00	2.26	2.00
Royster's Cotton Grower	9.00	2.26	2.00
Viking Ammoniated Guano	9.00	1.65	3.00
Special Compound	9.00	1.65	1.00
Royster's Grain Guano	9.00	.82	3.00
Royster's Special 1-9-2 Guano	9.00	.82	2.00
H. B. & Co.'s Special	8.00	4.69	10.00
Royster's Supreme Tobacco Guano	8.00	3.71	7.00
Royster's Best Guano	8.00	3.71	7.00
Cobb's High Grade for Tobacco	8.00	3.30	5.00
Trucker's Delight	8.00	3.30	4.00
Jupiter High Grade Guano	8.00	3.30	4.00
Royster's H. G. Special Tobacco Guano	8.00	3.30	4.00
Milo Tobacco Guano	8.00	3.30	4.00
Royster's Special 4-8-3 Guano	8.00	3.30	3.00
Gorham's Special	8.00	3.30	2.50
Eagle's Special Tobacco Guano	8.00	2.47	5.00
Marlboro High Grade Cotton Grower	8.00	2.47	3.00
Bonanza Tobacco Guano	8.00	2.47	3.00
Royster's Special Sweet Potato Guano	8.00	2.47	3.00
Royster's Special 8-2 $\frac{3}{4}$ -4 for Tobacco	8.00	2.26	4.00
Orinoco Tobacco Guano	8.00	2.06	3.00
Special Tobacco Compound	8.00	2.06	2.00
Royster's Special Wheat Fertilizer	8.00	1.65	2.00
Royster's Complete Guano	8.00	1.65	2.00
Farmers' Bone Fertilizer	8.00	1.65	2.00
Webb's Korn King	8.00	1.65	2.00
Farmers' Bone Fertilizer for Tobacco	8.00	1.65	2.00
Jumbo Peanut Grower	8.00	1.02	4.00
Royster's 8 and 4 Bone and Potash Mixture ..	8.00	....	4.00
Graves' Special Formula	7.40	3.91	9.65
Battle's Favorite	7.25	3.91	5.25
Royster's Special 7 Per Cent Truck Guano ..	7.00	5.77	7.00
Royster's Early Truck Guano	7.00	4.12	8.00
Royal Special Potato Guano	7.00	4.12	7.00
Royal Potato Guano	7.00	4.12	5.00
Royster's 7 and 5 Bone and Potash Mixture ..	7.00	....	5.00
Royster's Peanut Special	7.00	....	5.00
Arrow Potato Guano	6.00	5.77	5.00
Royster's Irish Potato Guano	6.00	4.12	7.00
Yellow Bark Sweet Potato Guano	6.00	4.12	7.00
Royster's Special 5-6-5	6.00	4.12	5.00
Pasquotank Potato Guano	6.00	3.30	8.00
Royster's Tobacco Manure	6.00	3.30	7.00
Royster's Special Formula "I"	6.00	3.30	6.00
Oakley's Special Tobacco Guano	6.00	3.30	4.00
Royster's 6-3-6 Special	6.00	2.47	6.00
Royster's 2-6-5 Special	6.00	1.65	5.00
Royster's Special Formula "H"	5.90	4.03	7.50
Wiggins' Special	5.50	3.30	3.00
Royster's Special 10 Per Cent Truck Guano ..	5.00	8.24	3.00
Royster's Cabbage Guano	5.00	8.24	2.50
Harvey's Cabbage Guano	5.00	6.59	3.00
Royster's Potato Guano	5.00	4.94	7.00
Royster's Special 20 Per Cent Plant Food	5.00	4.12	10.00
Phillips' Special	5.00	1.65	6.00
Royster's Ground Fish Scrap	4.00	8.24	....
Presto Top Dresser	4.00	8.22	4.00
Royster's Special Top Dresser	4.00	6.18	2.50
Royster's 4-6-4 Special	4.00	4.94	4.00
Currituck Sweet Potato Guano	4.00	2.47	8.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Royster's 10-2-5 Top Dresser	2.00	8.22	5.00
Nitrate of Soda		15.22	....
Magic Top Dresser		7.42	3.00
Sulphate of Potash			48.00
Muriate of Potash			48.00
Manure Salts			20.00
Genuine German Kainit			12.00

Robersonville Guano Co., Robersonville, N. C.—

Roberson's H. G. Acid Phosphate.....	16.00		
Roberson's H. G. Tobacco Grower.....	8.00	2.47	3.00
Roberson's H. G. Meal and Fish Guano.....	8.00	2.47	3.00
Roberson's H. G. Cotton Grower.....	8.00	2.47	3.00
Roberson's Special 7-7-7 Potato Grower.....	7.00	5.77	7.00
Roberson's H. G. Truck Guano.....	7.00	4.12	5.00
Roberson's 7 Per Cent Potato Guano.....	6.00	5.77	5.00
Robersonville H. G. Top Dresser.....	4.00	8.23	3.00
Sulphate of Ammonia .....	....	20.50	....
Nitrate of Soda .....	....	15.60	....
Dried Blood .....	....	13.62	....
Fish Scrap .....	....	8.00	....
Muriate of Potash .....	....	....	50.00
Sulphate of Potash .....	....	....	48.00
Roberson's Genuine German Kainit.....	....	....	12.00

Robeson Manufacturing Co., Lumberton, N. C.—

Eureka	10.00	3.30	5.00
Stanby	8.00	3.30	4.00
Gold Dollar	8.00	3.30	4.00
Globe C. S. M. Guano.....	8.00	2.47	5.00
Silver Dollar	8.00	2.47	3.00
Cottonade	8.00	2.47	3.00
Robeson's Special	8.00	1.65	3.00
Homerun Top Dresser	3.00	6.58	5.00
Genuine German Kainit .....	....	....	12.00

Richmond Guano Co., Richmond, Va.—

Pure Animal Bone	Total	25.00	2.47	....
Pure Raw Bone Meal.....	Total	22.50	3.70	....
Rex Dissolved Bone Phosphate.....		16.00	....	....
High Grade Acid Phosphate.....		14.00	....	....
Premium Bone and Potash Mixture.....		13.00	....	3.00
Premium Dissolved Bone		13.00	....	....
Premium Corn Special		12.00	1.00	2.00
Premium Wheat Special		12.00	1.00	2.00
H. G. Bone and Potash.....		12.00	....	5.00
Regal Bone and Potash Mixture.....		12.00	....	4.00
Old Homestead Dissolved Bone.....		12.00	....	....
Dissolved S. C. Phosphate.....		12.00	....	....
Premium Corn Grower		10.00	.82	1.00
Bone Mixture		10.00	.82	1.00
Johnson's Best Bone and Potash.....		10.00	....	5.00
Rex Bone and Potash Mixture.....		10.00	....	4.00
Bone and Potash Mixture.....		10.00	....	2.00
Sanders' Special Formula for Bright Tobacco.		9.00	2.88	5.00
Collins' Special Fertilizer.....		9.00	2.47	2.00
Carolina Cotton Grower.....		9.00	2.26	2.00
Burton's Special Tobacco Fertilizer.....		9.00	2.06	3.00
C. & B.'s Best Fertilizer.....		9.00	1.65	3.00
Bumper Crop Ammoniated Guano		9.00	1.65	3.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Lowery's Special Fertilizer	9.00	1.65	3.00
Cracker Jack Fertilizer	9.00	1.65	2.00
Bone Mixture	9.00	1.65	1.00
Premium Cotton Grower	9.00	.82	3.00
Premium Wheat Grower	9.00	.82	2.00
Premium Crop Grower	9.00	.82	2.00
Southern Trucker	8.00	4.11	5.00
Special Fertilizer	8.00	3.29	6.00
Perfection Special	8.00	3.29	4.00
Beeson's Best Fertilizer	8.00	2.47	10.00
Carolina Bright Tobacco Fertilizer	8.00	2.47	3.00
Gilt Edge Fertilizer	8.00	2.47	3.00
Gilt Edge Tobacco Fertilizer	8.00	2.47	3.00
Carolina Bright Special Tobacco Fertilizer...	8.00	2.26	2.50
Tip Top Tobacco Fertilizer	8.00	2.06	3.00
Tip Top Fertilizer	8.00	2.06	3.00
Carolina Bright for Cotton	8.00	2.06	1.50
Special Premium Brand for Tobacco	8.00	1.85	2.25
Special Premium Brand for Plants	8.00	1.85	2.25
Beeson's Favorite Fertilizer	8.00	1.65	10.00
Beeson's Special Fertilizer	8.00	1.65	6.00
Rex Tobacco Fertilizer	8.00	1.65	4.00
Rex Ammoniated Crop Grower	8.00	1.65	3.00
Premium Cotton Fertilizer	8.00	1.65	2.00
Premium Tobacco Fertilizer	8.00	1.65	2.00
Premium Brand Fertilizer	8.00	1.65	2.00
Edgecombe Cotton Grower	8.00	1.65	2.00
Premium Grain Special	8.00	.82	4.00
Premium Peanut Special	8.00	.82	4.00
Premium Peanut Grower	8.00	....	4.00
Tip Top Bone and Potash Mixture	8.00	....	4.00
Winter Grain and Grass Grower	8.00	....	4.00
Clark's Special Formula	7.00	4.94	6.00
Special High Grade for Truck	7.00	4.94	5.00
10 Per Cent Cabbage Guano	6.00	8.23	2.00
Smith's 7 Per Cent Special	6.00	5.76	5.00
Edwards' Prolific Cotton Grower	6.00	3.29	4.00
Gilt Edge Top Dresser	4.00	8.23	4.00
Premium Top Dresser	4.00	6.17	2.50
Carter's Special for Tobacco	4.00	2.47	6.00
Smith's Special Fertilizer	4.00	1.65	7.00
Sulphate of Ammonia .....	....	19.75	....
Nitrate of Soda .....	....	15.63	....
Special Top Dresser .....	....	7.40	3.00
Muriate of Potash .....	....	....	50.00
Sulphate of Potash .....	....	....	48.00
High Grade German Potash .....	....	....	16.00
Pure German Kainit .....	....	....	12.00

Ruhm Phosphate Mining Co., Mount Pleasant, Pa.—

Ground Phosphate Rock	Total	28.00		
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Red Cross Guano Co., Lynchburg, Va.—

Pure Raw Bone Meal	Total	22.00	3.71	
Red Cross Bone Meal	Total	22.00	3.00	
Red Cross H. G. Phosphate		16.00	....	....
Red Cross Standard Phosphate		14.00	....	....
Red Cross Grain Grower		10.00	....	4.00
Red Cross Bone and Potash		10.00	....	2.00
Red Cross High Grade for Tobacco		9.00	2.47	3.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Red Cross for Tobacco and Truck.....	9.00	1.85	4.00
Red Cross for Bright Tobacco	9.00	1.65	2.00
Red Cross Special for Tobacco	8.00	2.47	3.00
Red Cross Tobacco Guano	8.00	2.06	3.00
Red Cross Crop Grower	8.00	1.65	2.00
Red Cross Grain and Grass Special.....	8.00	1.00	3.00

Rasin-Monumental Co., Baltimore, Md.—

Rasin 16 Per Cent Acid Phosphate.....	16.00		
Rasin 14 Per Cent Acid Phosphate.....	14.00	....	....
Rasin 13 Per Cent Acid Phosphate.....	13.00	....	....
Rasin H. G. Bone and Potash.....	12.00	....	5.00
Rasin's 10-4-4	10.00	3.30	4.00
Rasin's 10-4-4	10.00	3.30	4.00
Rasin Seawell Alkaline Phosphate.....	10.00	....	6.00
Rasin Special Bone and Potash.....	10.00	....	5.00
Rasin's 10-4 Bone and Potash	10.00	....	4.00
Rasin Bone and Potash	10.00	....	2.00
Rasin's Dixie Cotton Guano	9.00	2.26	2.00
Rasin's Dixie Cotton Guano	9.00	2.26	2.00
Rasin's 9-2-3	9.00	1.65	3.00
Rasin Dixie Guano	9.00	1.65	2.00
Rasin's 9-82-3	9.00	.82	3.00
Baltimore Special Mixture	9.00	.82	2.00
Victoria Guano	8.00	3.30	4.00
Rasin H. G. Guano.....	8.00	3.29	4.00
Victoria Guano	8.00	3.20	4.00
Cotton Compound	8.00	2.47	3.00
Rasin's Complete Fertilizer	8.00	2.47	3.00
Cotton Compound	8.00	2.47	3.00
Rasin's Indian Brand for Tobacco.....	8.00	2.47	3.00
Rasin Gold Standard	8.00	2.47	3.00
Rasin Complete Fertilizer	8.00	2.47	3.00
Rasin Special Fertilizer	8.00	2.06	3.00
Rasin's General Tobacco Grower	8.00	2.06	3.00
Rasin's 8-2-2	8.00	1.65	2.00
Rasin's 8-2-2	8.00	1.65	2.00
Rasin Empire Guano	8.00	1.65	2.00
Rasin Irish Potato Special	7.00	3.29	8.00
Rasin Truckers' Mixture	6.00	5.77	5.00
Nitrate of Soda .....	....	14.82	....
Muriate of Potash .....	....	....	48.00
Sulphate of Potash .....	....	....	48.00
Rasin Genuine German Kainit			12.00

Rowe Bros. & Co., Hampton, Va.—

Ground Crab Scrap	3.25	4.92	
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Read Phosphate Co., Charleston, S. C.—

Read's H. G. Dissolved Bone.....	16.00		
Read's H. G. Acid Phosphate.....	14.00		
Read's Bone and Potash	10.00	....	4.00
Read's Alkaline Bone	10.00	....	2.00
Read's Manipulated Guano	9.00	1.65	3.00
Read's Ammoniated Dissolved Bone	8.00	3.30	6.00
Read's H. G. Guano	8.00	3.30	4.00
Read's H. G. Tobacco Leaf.....	8.00	2.47	3.00
Read's H. G. Cotton Grower.....	8.00	2.47	3.00
Read's Soluble Fish Guano	8.00	1.65	2.00
Read's Blood and Bone Fertilizer, No. 1.....	8.00	1.62	2.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Read's Special Potash Mixture	8.00	....	4.00
Read's Fish and Blood Mixture.....	7.00	3.30	5.00
Nitrate of Soda .....	....	19.00	....
Muriate of Potash .....	....	....	48.00
German Kainit .....	....	....	12.00

Reidsville Fertilizer Co., Reidsville, N. C.—

Reidsville Acid	16.00		
Acid and Potash	14.00	....	3.00
Harvest King	10.00	.82	4.00
Acid and Potash	10.00	....	4.00
Bone and Potash	10.00	....	4.00
Bone and Potash	10.00	....	2.00
Acid and Potash	10.00	....	2.00
Lion Brand Fertilizer	9.00	2.47	6.00
Reidsville Hustler	9.00	.82	2.00
Reidsville 4-8-4	8.00	3.31	4.00
Reidsville Best	8.00	3.30	8.00
Farmers Tobacco Fertilizer	8.00	2.47	3.00
Royal Fertilizer	8.00	2.47	3.00
Climax Fertilizer	8.00	2.06	3.00
Broad Leaf Tobacco Guano	8.00	1.85	2.50
Banner Fertilizer	8.00	1.65	2.00
Champion Guano	8.00	1.65	2.00
Reidsville Champion	8.00	1.65	2.00
J. H. Burton's Special.....	8.00	.82	3.00
Bone and Potash	8.00	....	4.00
Acid and Potash	8.00	....	4.00
Silver Leaf Tobacco Special.....	7.00	2.88	5.00
Reidsville Top Dresser	5.00	4.94	1.75

*Swift Fertilizer Works, Atlanta, Ga., Wilmington,
N. C., and Chester, S. C.—*

Swift's Raw Bone Meal	Total	23.00	3.70	...
Swift's Pure Bone Meal.....	Total	23.00	2.47	....
Swift's Fish Scrap High Grade.....		17.40	9.75	....
Swift's Special		16.00	....	....
Swift's Cultivator		14.00	....	....
Swift's Harrow		13.00	....	....
Swift's North Carolina Special		12.00	1.65	2.00
Swift's Special		12.00	....	6.00
Swift's Atlanta		12.00	....	4.00
Swift's Chattahoochee		12.00	....	....
Swift's Farmers' Special		10.00	3.29	4.00
Swift's Special High Grade Guano		10.00	3.29	3.00
Swift's Corn and Cotton Grower.....		10.00	2.47	3.00
Swift's Eagle		10.00	1.65	2.00
Swift's Planter's Special		10.00	.82	3.00
Swift's Plow Boy		10.00	.82	1.00
Swift's Atlanta		10.00	....	5.00
Swift's Farmer's Home		10.00	....	4.00
Swift's Field and Farm		10.00	....	2.00
Swift's Wheat Grower		10.00	....	2.00
Swift's Special		9.50	4.12	3.00
Swift's Blood, Bone and Potash.....		9.50	3.29	7.00
Swift's Champion		9.00	2.47	4.00
Swift's Special Cotton Grower.....		9.00	2.47	3.00
Swift's Cotton King		9.00	2.47	2.00
Swift's Special Cotton Guano.....		9.00	2.26	2.00
Swift's Gold Medal		9.00	1.65	3.00
Swift's Farmer's Favorite		9.00	1.65	3.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Swift's Cotton Plant	9.00	1.65	1.00
Swift's Special Formula	9.00	.82	2.00
Swift's Cape Fear.....	8.00	4.12	3.00
Swift's Special Tobacco Grower High Grade..	8.00	3.29	6.00
Swift's Majestic for Tobacco High Grade....	8.00	3.29	4.00
Swift's Monarch	8.00	3.29	4.00
Swift's Majestic	8.00	3.29	4.00
Swift's Quick Growth Tobacco Fertilizer.....	8.00	3.29	2.00
Swift's Strawberry Grower	8.00	2.47	10.00
Swift's Piedmont Tobacco Grower.....	8.00	2.47	6.00
Swift's Carter's Prolific	8.00	2.47	4.00
Swift's Carolina Tobacco Grower.....	8.00	2.47	3.00
Swift's Ruralist	8.00	2.47	3.00
Swift's Plow Boy	8.00	2.47	3.00
Swift's Gold Leaf Tobacco Grower.....	8.00	2.06	3.00
Swift's Gold Leaf Tobacco Grower.....	8.00	2.06	3.00
Swift's Braswell Formula	8.00	2.06	2.50
Swift's Sumatra Tobacco Grower.....	8.00	2.06	2.00
Swift's Bright Leaf Tobacco Grower.....	8.00	1.65	5.00
Swift's Pioneer Tobacco Grower.....	8.00	1.65	4.00
Swift's Clark's Special Cotton Grower.....	8.00	1.65	3.00
Swift's Red Steer	8.00	1.65	2.00
Swift's Golden Harvest	8.00	1.65	2.00
Swift's Thompson's Special	8.00	.82	5.00
Swift's Special Peanut Grower.....	8.00	.82	4.00
Swift's Plantation	8.00	....	4.00
Swift's Carolina 7 Per Cent Special Trucker..	7.00	5.76	7.00
Swift's Special Irish Potato Grower.....	7.00	4.12	8.00
Swift's Potato Grower	7.00	4.12	7.00
Swift's Early Trucker	7.00	4.12	5.00
Swift's Special High Grade	7.00	3.29	5.00
Swift's Special High Grade Guano	7.00	3.29	5.00
Swift's Special Trucker	6.00	5.76	5.00
Swift's Favorite Truck Guano.....	6.00	4.94	6.00
Swift's Special Potato Grower.....	6.00	4.12	7.00
Swift's Special Tobacco Grower.....	6.00	3.29	6.00
Swift's Special 10 Per Cent Blood and Bone Trucker	5.00	8.23	3.00
Swift's Superior Top Dresser.....	5.00	8.23	3.00
Swift's Plant Bed Tobacco Fertilizer.....	5.00	6.58	2.00
Swift's Fruiter Top Dresser.....	5.00	4.94	2.50
Swift's No. 1 Ground Tankage.....	4.50	8.24	....
Swift's Excelsior Top Dresser.....	4.00	6.18	2.00
Swift's Everett's Special Formula.....	4.00	3.29	3.00
Swift's No. 1 Grade Tankage.....	3.50	9.06	....
Swift's Pure Nitrate of Soda.....	....	14.82	....
Swift's Ground Dried Blood.....	....	13.18	....
Swift's Special Top Dresser.....	....	7.40	4.00
Swift's Nitrogen and Potash, No. 1.....	....	7.40	3.00
Swift's Nitrogen and Potash, No. 2.....	....	6.58	4.00
Swift's Cotton-seed Meal High Grade.....	....	6.18	....
Swift's Muriate of Potash.....	....	....	50.00
Swift's Sulphate of Potash.....	....	....	49.00
Swift's Pure German Kainit.....	....	....	16.00
Swift's Pure German Kainit.....	....	....	12.00

Southern Chemical Co., Inc., Roanoke, Va.—

Pride of Virginia.....	8.00	2.47	3.00
Valley Queen	8.00	1.65	10.00
Farmer's Joy	8.00	1.65	4.00
Our Favorite	8.00	1.65	2.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
<i>Spartanburg Fertilizer Co., Spartanburg, S. C.—</i>			
16 Per Cent Acid Phosphate.....	16.00	....	....
14 Per Cent Acidulated Phosphate.....	14.00	....	....
West's Potash Acid.....	13.00	....	3.00
13-3 Potash Acid.....	13.00	....	3.00
Staff of Life.....	12.50	.82	3.00
Nitro Blood	12.00	1.65	2.50
12-6	12.00	....	6.00
Wheat Formula	11.00	1.23	5.00
Gosnell's Plant Food.....	10.50	2.46	2.00
N. C. Special.....	10.50	1.65	8.00
Corn Formula	10.50	1.65	5.00
King Tiger	10.00	1.65	3.00
10-4	10.00	....	4.00
Dana's Best	10.00	....	4.00
Melrose	10.00	....	2.00
10-2	10.00	....	2.00
Hummer	9.00	1.65	3.00
Boll Buster	9.00	1.65	2.00
Grain Compound	9.00	1.65	2.00
Tiger Brand	9.00	.82	3.00
Unaka	8.00	3.29	4.00
Glencoe	8.00	2.46	3.00
I. X. L. Plant Food.....	8.00	1.65	2.00
Corn Grower	8.00	1.65	2.00
Corn Maker	8.00	1.65	2.00
Corn King	8.00	1.65	2.00
C. C. & O. Special.....	8.00	1.65	2.00
Potato Guano	7.00	2.46	7.00
Sulphate Ammonia .....	....	20.65	....
Nitrate of Soda.....	....	14.81	....
Muriate of Potash.....	....	....	48.00
Kainit .....	....	....	12.00
<i>Scotland Neck Guano Co., Scotland Neck, N. C.—</i>			
Our 16 Per Cent Acid Phosphate.....	16.00	....	....
Our Bone and Potash Mixture.....	10.00	....	4.00
Biggs' H. G. Truck Guano.....	8.00	4.12	5.00
Noah Biggs C. S. M. and Fish Scrap Guano...	8.00	3.30	4.00
State Farm C. S. M. and Fish Scrap Tobacco Guano	8.00	2.47	3.00
Carolina C. S. M. and Fish Scrap Guano.....	8.00	2.47	3.00
Farmers' C. S. M. and Fish Scrap Guano....	8.00	2.06	2.50
Our Special C. S. M. Guano.....	8.00	1.65	2.00
Johnson's Special Potato Guano.....	7.00	5.77	7.00
Our Best Peanut Guano.....	5.50	1.23	5.50
K. Elite Top Dressing.....	3.00	7.40	3.50
Nitrate of Soda.....	....	15.50	....
Noah Biggs Top Dresser.....	....	7.46	4.00
Our Genuine German Kainit.....	....	....	12.00
<i>L. A. Stoney, Raleigh, N. C.—</i>			
"Out of Sight".....	14.00	....	....
"Up Early"	12.00	....	4.00
"Ace of Trumps".....	10.00	2.41	2.00
"More-to-Bac" Special "Up to Snuff".....	8.00	3.30	4.25
"Get There"	8.00	3.28	3.00
"Old \$ Bill".....	6.75	4.72	5.00
"Hoe Cake"	6.50	4.93	4.50
"On the Spot".....	5.50	5.75	5.00
"I Win"	4.00	5.75	9.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
<i>The Southern Exchange Co., Marton, N. C.—</i>			
S. E. C. Acid Phosphate.....	16.00	....	....
S. E. C. Acid Phosphate.....	14.00	....	....
S. E. C. Bone and Potash Mixture.....	10.00	....	4.00
S. E. C. Bone and Potash Mixture.....	10.00	....	2.00
Juicy Fruit Fertilizer.....	9.00	1.85	4.00
The Walnut Fertilizer.....	8.50	2.06	2.50
Melon Grower.....	8.00	4.11	7.00
McKimmon's Special Truck Formula.....	8.00	4.11	7.00
Two Fours Guano.....	8.00	3.29	4.00
Southern Exchange Co.'s Bright Tobacco Formula.....	8.00	2.47	4.00
That Big Stick Guano.....	8.00	2.47	4.00
Bull of the Woods Fertilizer.....	8.00	2.47	4.00
Marietta Supply Co.'s Best.....	8.00	2.47	3.00
Jack's Best Fertilizer.....	8.00	2.47	3.00
Correct Cotton Compound.....	8.00	2.47	3.00
R. M. C. Special Crop Grower.....	8.00	2.47	3.00
Clark's Special Compound.....	8.00	1.65	3.00
Southern Exchange Co.'s Special Tobacco Fer- tilizer.....	8.00	1.65	3.00
Currie Crop Lifter.....	8.00	1.65	3.00
The Racer Guano.....	8.00	1.65	3.00
The Coon Guano.....	8.00	1.65	2.00
The Southern Exchange Co.'s Top Dresser...	4.00	8.23	2.00
Nitrate of Soda.....	....	15.00	....
Muriate of Potash.....	....	....	49.00
Genuine German Kainit.....	....	....	12.00

H. T. Shannonhouse, Hertford, N. C.—

Acid Phosphate.....	16.00	....	....
Full Value.....	8.00	3.29	4.00
Sunny South.....	8.00	2.47	3.00
Southern Pride.....	8.00	2.47	3.00
Carolina's Choice.....	8.00	2.47	3.00
Square Deal.....	8.00	1.65	2.00
Farmers' Money Maker.....	8.00	1.65	2.00
High Grade.....	6.00	4.11	5.00
Genuine German Kainit.....	....	....	12.00

*The Southern Cotton Oil Co., Concord, Davidson.
Shelby, Gibson, Monroe and Wadesboro—*

Southern Cotton Oil Co.'s 16 Per Cent Acid Phosphate.....	16.00	....	....
Gold Seal Acid Phosphate.....	14.00	....	....
Silver King Acid Phosphate.....	13.00	....	....
Conqueror Bone and Potash.....	10.00	....	4.00
Magnolia Bone and Potash.....	10.00	....	2.00
Uncle Sam.....	9.00	2.47	3.00
Home Made.....	9.00	2.05	3.00
Razem.....	9.00	1.65	3.00
King Bee.....	9.00	1.65	2.00
Choice.....	8.00	3.30	6.00
Conqueror.....	8.00	3.30	4.00
Canto.....	8.00	3.29	6.00
Melonite.....	8.00	3.29	4.00
Peacock.....	8.00	2.47	3.00
Moon.....	8.00	2.47	3.00
Landsake.....	8.00	2.47	2.50
Red Bull.....	8.00	2.06	2.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
All-to-Good	8.00	2.05	3.00
Gloria	8.00	1.65	2.00
Double Two	8.00	1.65	2.00
Dandy Top Dresser.....	4.00	9.07	2.50
Peerless Top Dresser.....	4.00	6.17	2.50
Nitrate of Soda.....	....	15.00	....
Nitrate of Soda.....	....	13.20	....
Labi .....	....	8.99	17.00
Muriate of Potash.....	....	....	48.00
Sulphate of Potash.....	....	....	48.00
Genuine German Kainit.....			12.00

Southern Cotton Oil Co., Dillon, S. C.—

Cottingham's Choice	7.00	2.47	5.00
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Southern Cotton Oil Co., Spartanburg and Greenville, S. C.—

S. C. O. Co.'s H. G. D. B.....	16.00		
Golden Fleece H. G. A. P.....	14.00		
The Boss	10.00	3.29	4.00
Spartan Favorite H. G.....	10.00	2.47	4.00
S. C. O.'s No. 1024.....	10.00	1.65	4.00
Quick Step Acid with Potash.....	10.00	....	4.00
Palmetto Acid with Potash.....	10.00	....	2.00
Pride of the South.....	9.00	2.47	3.00
Spartan Hustler	9.00	1.65	3.00
Palmetto Standard	9.00	1.65	2.00
Sunrise High Grade.....	8.00	4.11	7.00
Quick Step H. G.....	8.00	3.29	4.00
S. C. O. Co.'s No. 835.....	8.00	2.47	5.00
Golden Fleece H. G.....	8.00	2.47	3.00
Standard Grain Grower.....	8.00	.85	4.00
S. C. O. Co.'s Acid with Potash.....	8.00	....	4.00
S. C. O. Co.'s Top Dresser.....	4.00	6.18	4.00
S. C. O. Co.'s Nitrate of Soda.....	....	14.82	....
S. C. O. Co.'s Muriate of Potash.....	....	....	48.00
S. C. O. Co.'s German Kainit.....	....	....	12.00

Southern Cotton Oil Co., Charlotte, N. C.—

Bennett's High Grade Fertilizer.....	9.00	3.29	4.00
Adams Favorite	9.00	2.47	4.50
Special Grain Grower.....	9.00	.82	3.00
Lathan & Richardson's Cotton and Corn Fertilizer	8.00	2.47	3.00
Harrell Bros. & Co. Cotton and Corn Fertilizer.....	8.00	2.47	3.00
Marsh Bros. Cotton and Corn Fertilizer.....	8.00	2.47	3.00
Davis Ross Co. Cotton and Corn Fertilizer..	8.00	2.47	3.00
Coöperative Mercantile Co. Cotton and Corn Fertilizer	8.00	2.47	3.00
J. L. Austin & Co.'s Cotton and Corn Fertilizer.....	8.00	2.47	3.00
Collins & Bigger's Cotton and Corn Fertilizer.....	8.00	2.47	3.00
Gordon & Presson's Cotton and Corn Fertilizer.....	8.00	2.47	3.00
T. C. Lee & Co.'s Cotton and Corn Fertilizer.....	8.00	2.47	3.00
S. B. Hart's Cotton and Corn Fertilizer.....	8.00	2.47	3.00
Lathan & Richardson's Cotton and Corn Fertilizer	8.00	1.65	2.00
T. C. Lee & Co. Cotton and Corn Fertilizer...	8.00	1.65	2.00
Gordon & Presson's Cotton and Corn Fertilizer.....	8.00	1.65	2.00
S. B. Hart's Cotton and Corn Fertilizer.....	8.00	1.65	2.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Collins & Biggers' Cotton and Corn Fertilizer.	8.00	1.65	2.00
Coöperative Merchants Co.....	8.00	1.65	2.00
Marsh Bros.' Cotton and Corn Fertilizer....	8.00	1.65	2.00
David Ross Co. Cotton and Corn Fertilizer...	8.00	1.65	2.00
J. L. Austin & Co. Cotton and Corn Fertilizer.	8.00	1.65	2.00
Harrell Bros. & Co. Cotton and Corn Fertilizer	8.00	1.65	2.00
Special Top Dresser.....	....	8.22	3.00

*Southern Cotton Oil Co., Goldsboro, Fayetteville,
Rocky Mount and Wilson—*

Southern Cotton Oil Co.'s 16 Per Cent Acid Phosphate	16.00		
Southern Cotton Oil Co.'s 14 Per Cent Acid Phosphate	14.00	....	....
Best & Thompson's Special Cotton Grower...	9.00	2.27	2.00
Goldsboro Cotton Grower.....	9.00	2.27	2.00
Southern Cotton Oil Co.'s Special for Tobacco.	8.00	3.71	7.00
Goldsboro Oil Mill Special Mixture.....	8.00	3.30	4.00
Fayetteville Oil Mill Special Mixture.....	8.00	3.30	4.00
Wilson Oil Mill Special Mixture.....	8.00	3.30	4.00
Southern Cotton Oil Co.'s Special Mixture...	8.00	3.30	4.00
Rocky Mount Oil Mill Special Mixture.....	8.00	3.30	4.00
Southern Cotton Oil Co.'s Melon Grower.....	8.00	2.47	10.00
Southern Cotton Oil Co.'s Special Cotton Grower	8.00	2.47	3.00
Best & Thompson's High Grade.....	8.00	2.47	3.00
Goldsboro Oil Mill Special Cotton Grower...	8.00	2.47	3.00
Fayetteville Oil Mill Special Cotton Grower..	8.00	2.47	3.00
Wilson Oil Mill Special Cotton Grower.....	8.00	2.47	3.00
Rocky Mount Oil Mill Special Cotton Grower.	8.00	2.47	3.00
B. G. Thompson's Special Cotton and Tobacco Guano	8.00	2.47	3.00
Egerton's Old Reliable.....	8.00	2.47	3.00
Morning Glory	8.00	2.47	3.00
Goldsboro Oil Mill High Grade.....	8.00	2.47	3.00
Fayetteville Oil Mill High Grade.....	8.00	2.47	2.50
Wilson Oil Mill High Grade.....	8.00	2.27	2.50
The Southern Cotton Oil Co. High Grade.....	8.00	2.27	2.50
Halifax Peanut Grower.....	8.00	1.65	5.00
Southern Cotton Oil Co.'s Peanut Grower....	8.00	1.65	4.00
Goldsboro Oil Mill Standard.....	8.00	1.65	2.00
Fayetteville Oil Mill Standard.....	8.00	1.65	2.00
Wilson Oil Mill Standard.....	8.00	1.65	2.00
Rocky Mount Oil Mill Standard.....	8.00	1.65	2.00
The Southern Cotton Oil Co. Standard.....	8.00	1.65	2.00
Southern Cotton Oil Co.'s Truck Grower.....	6.00	4.12	7.00
Southern Special for Tobacco.....	6.00	2.90	6.00
Southern Cotton Oil Co. Top Dresser.....	4.00	8.25	4.00
Rocky Mount Top Dresser.....	....	7.43	4.00

Tidewater Guano Co., Norfolk, Va.—

Tidewater Raw Bone Meal.....Total	21.00	3.71	....
Top Rail Acid Phosphate.....	16.00	....	....
Buster Brown Acid Phosphate.....	14.00	....	....
J. W. S. Acid Phosphate.....	13.00	....	....
Tidewater Special Bone and Potash.....	12.00	....	5.00
Tidewater Bone and Potash.....	10.00	....	5.00
Diana Brand Bone and Potash Compound....	10.00	....	4.00
Bully Boy Dissolved Bone and Potash.....	10.00	....	2.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Diana Brand Soluble Guano.....	8.00	3.30	6.00
High Tide Soluble Guano.....	8.00	3.30	4.00
Sho Nuf Guano High Grade Complete Manure.	8.00	2.47	3.00
Hawk Eye Soluble Guano.....	8.00	2.07	2.00
Soil King Special Guano.....	8.00	1.85	4.00
Double Action Soluble Guano.....	8.00	1.65	2.00
"Good Money" Complete Guano.....	8.00	1.00	4.00
Tidewater S and 4 Bone and Potash.....	8.00	....	4.00
Tidewater Truck Guano.....	7.00	4.12	5.00
Tidewater 4-6-4 Guano.....	6.00	3.30	4.00
Nitrate of Soda.....	....	14.85	....
Blood .....	....	13.20	....
Muriate of Potash.....	....	....	50.00
Sulphate of Potash.....	....	....	48.00
Genuine German Kainit.....	....	....	12.00

Tuscarora Fertilizer Co., Atlanta, Ga., and Wilmington, N. C.—

Bone Meal	Total	24.00	2.47	....
Raw Bone Meal.....	Total	22.00	3.70	....
Acid Phosphate		17.00	....	....
Acid Phosphate		16.00	....	....
Acid Phosphate		14.00	....	....
Acid Phosphate		13.00	....	....
Tuscarora Phosphate and Potash.....		12.00	....	6.00
Tuscarora Acid Phosphate.....		12.00	....	....
Tuscarora Fertilizer, No. 1044.....		10.00	3.30	4.00
Tuscarora Fertilizer, No. 1025.....		10.00	1.65	5.00
Tuscarora Fertilizer, No. 1022.....		10.00	1.65	2.00
Tuscarora Phosphate and Potash.....		10.00	....	6.00
Tuscarora Alkaline Bone.....		10.00	....	5.00
Tuscarora Acid Potash.....		10.00	....	4.00
Tuscarora Bone and Potash.....		10.00	....	2.00
Tuscarora Fertilizer No. 9-2½-5.....		9.00	2.05	5.00
Tuscarora Chief		9.00	1.65	3.00
Fertilizer, No. 913.....		9.00	.82	3.00
Tuscarora Truckee		8.00	4.11	7.00
Fertilizer, No. 844.....		8.00	3.30	4.00
Fertilizer, No. 8310.....		8.00	2.47	10.00
Tuscarora, No. 836, for Tobacco.....		8.00	2.47	6.00
Special for Tobacco.....		8.00	2.47	5.00
Boon's Special		8.00	2.47	4.00
Tobacco Special		8.00	2.47	3.00
Cotton Special		8.00	2.47	3.00
Fertilizer, No. 833.....		8.00	2.47	3.00
Tuscarora Blood and Bone.....		8.00	2.47	3.00
Berry King		8.00	2.05	4.00
Tuscarora Tobacco Fertilizer.....		8.00	2.05	3.00
Tuscarora Champion		8.00	2.05	2.50
Tuscarora Champion Tobacco Grower.....		8.00	2.05	2.50
King Cotton		8.00	2.05	2.00
Tuscarora Fruit and Potato.....		8.00	1.65	10.00
Tuscarora Fertilizer, No. 825.....		8.00	1.65	5.00
Fertilizer, No. 824.....		8.00	1.65	4.00
Fertilizer, No. 823.....		8.00	1.65	3.00
Tuscarora Standard		8.00	1.65	2.00
Tuscarora Standard Tobacco Grower.....		8.00	1.65	2.00
Fertilizer, No. 815.....		8.00	.82	5.00
Fertilizer, No. 813.....		8.00	.82	3.00
Tuscarora Bone and Potash.....		8.00	....	5.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Tuscarora Bone and Potash.....	8.00	....	4.00
Big Four (4) Fertilizer.....	7.00	1.65	4.00
Manure Substitute	6.00	3.30	4.00
Tuscarora Complete Top Dresser.....	4.00	6.18	2.50
Tankage	2.00	8.24	....
Nitrate of Soda.....	....	14.81	....
Dried Blood .....	....	13.16	....
Tuscarora Top Dresser.....	....	7.83	4.00
Tuscarora Chief Top Dresser.....	....	7.40	3.00
Muriate of Potash.....	....	....	50.00
Sulphate of Potash.....	....	....	50.00
Kainit .....	....	....	12.00

Tuscarora Fertilizer Co., Greensboro and Wilmington, N. C.—

Tuscarora Fertilizer Co. 933.....	9.00	2.47	3.00
Tuscarora Tobacco Fertilizer.....	9.00	2.47	3.00
Sulphate of Ammonia.....	....	20.00	....

Union Guano Co., Winston-Salem, N. C.—

Pure Raw Animal Bone Meal.....	20.60	3.71	....
Union 16 Per Cent Acid Phosphate.....	16.00	....	....
Union High Grade Acid Phosphate.....	14.00	....	....
Dissolved Animal Bone Meal.....	13.00	2.06	....
Union Dissolved Bone.....	13.00	....	....
Union 12-6 Bone and Potash.....	12.00	....	6.00
Union 12-5 Bone and Potash.....	12.00	....	5.00
Union 12-4 Bone and Potash.....	12.00	....	4.00
Union 12-3 Bone and Potash.....	12.00	....	3.00
Union 12-2 Bone and Potash.....	12.00	....	2.00
Union 12 Per Cent Acid Phosphate.....	12.00	....	....
Liberty Bell Crop Grower.....	10.50	....	1.50
Union Prolific Cotton Compound.....	10.00	3.29	4.00
Union Special Formula for Cotton.....	10.00	2.47	3.00
Union Mule Brand Guano.....	10.00	1.65	2.00
Grain Chemicals	10.00	1.03	6.00
Union 10-6 Bone and Potash.....	10.00	....	6.00
Union 10-5 Bone and Potash.....	10.00	....	5.00
Union 10-4 Bone and Potash.....	10.00	....	4.00
Quakers Grain Mixture.....	10.00	....	4.00
Giant Phosphate and Potash.....	10.00	....	3.00
Finch & Harris's Special Bone and Potash Mixture	10.00	....	3.00
Union Bone and Potash.....	10.00	....	2.00
Union Renown Guano.....	9.00	2.47	3.00
Union Perfect Cotton Grower.....	9.00	2.26	2.00
Union Complete Cotton Mixture.....	9.00	1.65	3.00
Farmers' Blood and Bone Guano.....	9.00	1.65	3.00
Dixie Cotton Grower.....	9.00	1.65	2.00
Q. and Q. (Quality and Quantity) Guano.....	9.00	1.65	1.00
B. S. Ammoniated Guano	9.00	.82	3.00
Union Guano for Cotton and Tobacco.....	8.00	3.29	6.00
Union Premium Guano	8.00	3.29	4.00
Union Homestead Guano	8.00	2.47	3.00
Victoria High Grade Tobacco Fertilizer.....	8.00	2.47	3.00
Union Water Fowl Guano.....	8.00	2.06	3.00
Union Standard Tobacco Grower.....	8.00	2.06	2.00
Union Potato Mixture	8.00	1.65	10.00
Old Honesty Guano	8.00	1.65	2.00
Fish Brand Ammoniated Guano for Tobacco..	8.00	1.65	2.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Old Honesty Tobacco Guano	8.00	1.65	2.00
Fish Brand Ammoniated Guano.....	8.00	1.65	2.00
Union Superlative Guano	8.00	.82	4.00
Sunrise Ammoniated Guano	8.00	.82	3.00
Union S-5 Bone and Potash.....	8.00	....	5.00
Union Wheat Mixture	8.00	....	4.00
Union Vegetable Compound	7.00	4.12	8.00
Union Truck Guano	7.00	3.29	5.00
Complete Mixture for Top Dressing.....	4.00	6.18	4.00
Special 10 Per Cent Top Dresser.....	2.00	8.24	2.50
Nitrate of Soda .....	....	14.82	....
Union Top Dresser .....	....	7.42	3.00
Muriate of Potash .....	....	....	48.00
Sulphate of Potash .....	....	....	48.00
Genuine German Kainit .....	....	....	12.00

United States Fertilizer Co., Baltimore, Md.—

Raw Bone Meal	22.50	3.69	....
Farm Bell Acid Phosphate	16.00	....	....
Farm Bell Acid Phosphate	14.00	....	....
Farm Bell Phospho. Potassa	12.00	....	5.00
Farm Bell Potash and Acid	10.00	....	6.00
Farm Bell 10-5 Mixture	10.00	....	5.00
Farm Bell Special Mixture	10.00	....	4.00
Farm Bell Alkaline Mixture	10.00	....	2.00
Farm Bell Big Yield	9.00	2.47	4.00
Farm Bell Buckeye Guano	9.00	.82	2.00
Farm Bell Blood, Bone and Potash.....	8.00	4.11	7.00
Farm Bell Excelsior Guano	8.00	3.28	7.00
Farm Bell Majestic Guano	8.00	3.28	4.00
Farm Bell Tobacco Fertilizer	8.00	2.47	4.00
Farm Bell Cotton Special	8.00	2.47	3.00
Farm Bell Tobacco Special	8.00	2.47	3.00
Farm Bell Tomato Special	8.00	2.06	3.00
Farm Bell Crop Grower	8.00	2.06	3.00
Farm Bell Fruit and Potato.....	8.00	1.65	10.00
Farm Bell Animal Ammoniated	8.00	1.65	5.00
Farm Bell Standard Guano	8.00	1.65	2.00
Farm Bell Wheat, Oat, Corn Special.....	8.00	.82	6.00
Farm Bell Pennant Winner	8.00	.82	4.00
Farm Bell Phosphate and Potash	8.00	....	5.00
Farm Bell Wheat and Grass Grower.....	8.00	....	4.00
Farm Bell Truckers' Ideal	7.00	4.11	8.00
Farm Bell Potato and Tobacco Guano.....	7.00	2.47	10.00
Farm Bell Klimax Kompond	7.00	.82	4.00
Farm Bell 7 Per Cent Trucker.....	6.00	5.75	5.00
Farm Bell Trucker's Favorite	6.00	3.28	8.00
Farm Bell Top Dresser	4.00	6.56	2.00
Sulphate of Ammonia .....	....	20.50	....
Nitrate of Soda .....	....	15.50	....
Sulphate of Potash .....	....	....	50.00
Muriate of Potash .....	....	....	48.00
Kainit .....	....	....	12.00

Union Abattoir Co., Norfolk, Va.—

Red Star Acid Phosphate	16.00	....	....
Red Star Acid Phosphate	14.00	....	....
Red Star Potash and Soluble Bone.....	10.00	....	4.00
Red Star H. G. Guano	8.75	2.00	2.00
Red Star Brand Cotton Guano	8.00	3.28	4.00
Red Star Cotton Guano	8.00	2.50	1.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Red Star Cotton and Tobacco Guano.....	8.00	2.46	3.00
Red Star Standard	8.00	2.00	2.00
Red Star 7 Per Cent Guano.....	6.00	5.74	5.00
Nitrate of Soda .....	....	15.23	....
Muriate of Potash .....	....	....	50.00

R. L. Upshur Guano Co., Norfolk, Va.—

Upshur's 16 Per Cent Acid Phosphate.....	16.00	....	....
Upshur's 14 Per Cent Acid Phosphate.....	14.00	....	....
Upshur's 10-4 Bone and Potash.....	10.00	....	4.00
Upshur's 10-2 Bone and Potash.....	10.00	....	2.00
Upshur's Cotton-seed Meal Mixture.....	9.00	2.26	2.00
Upshur's Special 8-4-4	8.00	3.29	4.00
Upshur's 8-3-3 Cotton Guano.	8.00	2.47	3.00
Upshur's High Grade Tobacco Guano.....	8.00	2.47	3.00
Upshur's O. P. (Old Plantation).....	8.00	2.06	3.00
Upshur's Fish, Bone and Potash.....	8.00	1.65	4.00
Upshur's Peanut Guano	8.00	1.65	2.00
Upshur's G., G. and C. (Grain, Grass and Cotton)	8.00	1.65	2.00
Upshur's Premo Cotton Guano	8.00	1.65	2.00
Upshur's Special Truck Guano	7.00	4.11	8.00
Upshur's F. F. (Farmer's Favorite).....	7.00	4.11	6.00
Upshur's 5 Per Cent Guano.....	7.00	4.11	5.00
Upshur's 6-4-4 Guano.....	6.00	3.29	4.00
Upshur's Norfolk Special 10 Per Cent.....	5.00	8.23	2.00
Upshur's 7 Per Cent Special Potato Guano...	5.00	5.76	5.00
Upshur's Top Dresser	3.00	8.23	4.00
Nitrate of Soda .....	....	15.65	....
Muriate of Potash .....	....	....	50.00
Sulphate of Potash .....	....	....	50.00
Genuine German Kainit .....	....	....	12.00

Van Iderstine Company, New York and Wilmington, N. C.—

Van Iderstine Pure Ground Bone.....	27.00	2.00	
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Venable Fertilizer Co., Richmond, Va.—

Pure Animal Bone	Total	25.00	2.47	
Pure Raw Bone	Total	22.50	3.70	
Venable Best Acid Phosphate		16.00	....	....
H. G. Acid Phosphate.....		14.00	....	....
Venable's Dissolved Bone		13.00	....	....
Venable's Majestic Bone and Potash Mixture.		12.00	....	5.00
Venable's Standard Acid Phosphate.....		12.00	....	....
Venable's Corn, Wheat and Grass Fertilizer..		10.00	.82	1.00
High Grade Bone and Potash Mixture.....		10.00	....	4.00
Bone and Potash Mixture.....		10.00	....	2.00
Venable Carolina Favorite		9.00	2.47	6.00
Venable's 3-9-3 Tobacco Fertilizer.....		9.00	2.47	3.00
Roanoke Mixture		9.00	2.26	2.00
Roanoke Meal Mixture		9.00	2.26	2.00
Venable's Majestic Guano		9.00	1.65	3.00
Venable's B. B. P. Manure.....		9.00	1.65	1.00
Venable's 5 Per Cent Trucker		8.00	4.11	5.00
Venable's Sovereign Guano		8.00	3.29	4.00
Venable's 4 Per Cent Trucker.....		8.00	3.29	4.00
Venable's H. G. Tobacco Fertilizer.....		8.00	2.47	3.00
Farmers' Union H. G. Tobacco Guano.....		8.00	2.47	3.00
Ballard's Choice Fertilizer		8.00	2.47	3.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Venable's H. G. Cotton Guano.....	8.00	2.47	3.00
Venable's Alliance Tobacco Manure, No. 1....	8.00	2.06	3.00
Venable's Cotton Grower	8.00	2.06	3.00
Venable's Roanoke Special	8.00	2.06	3.00
Venable's Ideal Manure	8.00	1.65	5.00
Our Union Tobacco Fertilizer	8.00	1.65	4.00
Farmers' Union Special Tobacco Fertilizer...	8.00	1.65	2.00
Venable's Meal Mixture	8.00	1.65	2.00
Venable's Alliance Tobacco Manure, No. 2....	8.00	1.65	2.00
Our Union Special Fertilizer.....	8.00	1.65	2.00
Planter's Bone Fertilizer	8.00	1.65	2.00
Venable's Peanut Special	8.00	.82	4.00
Venable's Alliance Bone and Potash Mixture.	8.00	....	4.00
Venable's Peanut Grower	8.00	....	4.00
Venable's 10 Per Cent Trucker	6.00	8.23	2.00
Venable's 6-6-6 Manure	6.00	4.94	6.00
Ideal Top Dresser	4.00	8.23	4.00
Majestic Top Dresser	4.00	6.17	2.50
Sulphate of Ammonia .....	....	19.75	....
Nitrate of Soda .....	....	15.63	....
Special Top Dresser .....	....	7.40	3.00
Muriate of Potash .....	....	....	50.00
Sulphate of Potash .....	....	....	48.00
High Grade German Potash.....	....	....	16.00
Pure German Kainit .....	....	....	12.00

Vance Guano Co., Henderson, N. C.—

Best Grade Acid Phosphate	16.00	....	....
Vance High Grade Acid Phosphate.....	14.00	....	....
Vance Corn and Grain Grower.....	10.00	.82	3.50
Bone and Potash Compound.....	10.00	....	2.00
Farmers' Union High Grade	9.00	2.47	3.00
Brodie's Best B. B.	8.00	3.29	4.00
Vance Special Tobacco Manure.....	8.00	2.47	8.00
Fish Brand Tobacco Manure	8.00	2.47	3.00
Sterling Cotton Grower	8.00	1.65	2.00
Hot Stuff	8.00	1.65	2.00

Virginia-Carolina Chemical Co., Richmond, Va.—

V.-C. C. Co.'s Floats	Total	27.00	....	....
V.-C. C. Co.'s Concentrated Acid Phosphate..		24.00	....	....
V.-C. C. Co.'s Pure Raw Bone	Total	20.60	3.71	....
V.-C. C. Co.'s Johnson's Best		20.00	4.94	6.00
V.-C. C. Co.'s Concentrated Bone and Potash.		20.00	....	4.00
V.-C. C. Co.'s 17 Per Cent Acid Phosphate...		17.00	....	....
V.-C. C. Co.'s Concentrated Ammoniated		16.00	3.29	4.00
V.-C. C. Co.'s Climax Potash Mixture		16.00	....	2.00
V.-C. C. Co.'s Alliance Acid Phosphate		16.00	....	....
V.-C. C. Co.'s 16 Per Cent Acid Phosphate ...		16.00	....	....
V.-C. C. Co.'s Sludge Acid Phosphate		14.00	....	....
V.-C. C. Co.'s 14 Per Cent Acid Phosphate...		14.00	....	....
V.-C. C. Co.'s Dissolved Animal Bone		13.00	2.06	....
V.-C. C. Co.'s 13 Per Cent Acid Phosphate...		13.00	....	....
V.-C. C. Co.'s Special High Grade Potash				
Mixture		12.00	....	6.00
V.-C. C. Co.'s H. G. Potash Mixture.....		12.00	....	5.00
V.-C. C. Co.'s Goodman's Special Potash Mix-				
ture		12.00	....	5.00
V.-C. C. Co.'s 12-4 Grain Grower		12.00	....	4.00
V.-C. C. Co.'s Wythe County Potash Mixture.		12.00	....	3.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
V.-C. C. Co.'s Special Crop Grower	12.00	....	3.00
V.-C. C. Co.'s Battle's Crop Grower	12.00	....	3.00
V.-C. C. Co.'s 12 Per Cent Acid Phosphate...	12.00	....	....
V.-C. C. Co.'s Home Comfort Acid Phosphate.	12.00	....	....
V.-C. C. Co.'s Virginia 11-5 Bone and Potash.	11.00	....	5.00
V.-C. C. Co.'s Electric H. G. Special.....	10.00	3.29	4.00
V.-C. C. Co.'s Ideal Crop Grower	10.00	2.47	3.00
V.-C. C. Co.'s Special Grain Mixture	10.00	1.65	5.00
V.-C. C. Co.'s Sovereign Crop Producer.....	10.00	1.65	2.00
V.-C. C. Co.'s Ford's Wheat and Corn Guano.	10.00	.82	2.50
V.-C. C. Co.'s Grain Special	10.00	....	6.00
V.-C. C. Co.'s Standard Bone and Potash....	10.00	....	5.00
V.-C. C. Co.'s Crescent Potash Mixture	10.00	....	5.00
V.-C. C. Co.'s Special Potash Mixture	10.00	....	4.00
V.-C. C. Co.'s Dissolved Bone and Potash....	10.00	....	2.00
V.-C. C. Co.'s Best's H. G. Tobacco Fertilizer.	9.00	2.47	7.00
V.-C. C. Co.'s Great Texas Cotton Grower Sol- uble Guano	9.00	2.47	4.00
V.-C. C. Co.'s 3-9-3 Tobacco Fertilizer	9.00	2.47	3.00
V.-C. C. Co.'s Jeffrey's High Grade Guano...	9.00	2.47	3.00
V.-C. C. Co.'s N. and R.'s Best.....	9.00	2.47	3.00
V.-C. C. Co.'s Westfield Special H. G. Tobacco Grower	9.00	2.47	3.00
V.-C. C. Co.'s Grey Soil Special H. G. Tobacco Grower	9.00	2.47	3.00
V.-C. C. Co.'s Powell's Special H. G. C. S. M.	9.00	2.26	3.00
V.-C. C. Co.'s Southern Cotton Grower C. S. M.	9.00	2.26	2.00
V.-C. C. Co.'s Vececo Cotton Grower C. S. M.	9.00	2.26	2.00
V.-C. C. Co.'s Cotton Grower	9.00	2.26	2.00
V.-C. C. Co.'s Best's Special Cotton Grower..	9.00	2.26	2.00
V.-C. C. Co.'s Prolific Cotton Grower C. S. M.	9.00	2.26	2.00
V.-C. C. Co.'s White Stem C. S. M.	9.00	2.26	2.00
V.-C. C. Co.'s Standard Cotton Grower C. S. M.	9.00	2.26	2.00
V.-C. C. Co.'s Bumper Crop Grower	9.00	2.06	5.00
V.-C. C. Co.'s Cuban Special Mixture	9.00	1.85	4.00
V.-C. C. Co.'s Cock's Soluble Guano H. G. Ani- mal Bone	9.00	1.85	3.00
V.-C. C. Co.'s No. 923 Guano.....	9.00	1.65	3.00
V.-C. C. Co.'s Reliable Cotton Brand Fertilizer	9.00	1.65	3.00
V.-C. C. Co.'s North State Guano C. S. M. ...	9.00	1.65	1.00
V.-C. C. Co.'s Grain Mixture	9.00	1.03	2.00
V.-C. C. Co.'s Tiger Brand	9.00	1.00	3.00
V.-C. C. Co.'s Bigelow's Crop Guano	9.00	.82	3.00
V.-C. C. Co.'s Burnhardt's Grain and Crop Guano	9.00	.82	3.00
V.-C. C. Co.'s McCormick's Wheat and Grain Guano	9.00	.82	3.00
V.-C. C. Co.'s Baltimore Special Mixture.....	9.00	.82	2.00
V.-C. C. Co.'s Farmer's Friend Favorite Fer- tilizer Special	8.50	1.65	2.00
V.-C. C. Co.'s Powhatan Crop Mixture.....	8.50	1.65	1.50
V.-C. C. Co.'s Pelican Peruvian Guano (Peli- can Truck Grower and Top Dresser).....	8.00	4.12	5.00
V.-C. C. Co.'s Muse's Special	8.00	3.70	7.00
V.-C. C. Co.'s Enterprise High Grade	8.00	3.29	11.00
V.-C. C. Co.'s Long Leaf Tobacco Grower....	8.00	3.29	5.00
V.-C. C. Co.'s Old Dominion Special Mixture for Tobacco	8.00	3.29	4.00
V.-C. C. Co.'s Alliance H. G. Manure.....	8.00	3.29	4.00
V.-C. C. Co.'s Fish and Meal Mixture.....	8.00	3.29	4.00
V.-C. C. Co.'s Carr's Crop Grower.....	8.00	3.29	4.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
V.-C. C. Co.'s Farmers' Choice	8.00	3.29	4.00
V.-C. C. Co.'s John F. Croom & Bro. Fish and Meal Mixture	8.00	3.29	4.00
V.-C. C. Co.'s Special	8.00	3.29	4.00
V.-C. C. Co.'s Nowell & Richardson's Special.	8.00	3.29	4.00
V.-C. C. Co.'s Croom's Crop Grower, Best for All Crops	8.00	3.29	4.00
V.-C. C. Co.'s Formula 161 for Tobacco.....	8.00	3.29	4.00
V.-C. C. Co.'s High Grade Tobacco Fertilizer.	8.00	2.47	10.00
V.-C. C. Co.'s Valentine Special	8.00	2.47	7.00
V.-C. C. Co.'s Special Mixture	8.00	2.47	6.00
V.-C. C. Co.'s Excelsior H. G. Special.....	8.00	2.47	5.00
V.-C. C. Co.'s Lion's High Grade Tobacco Fer- tilizer	8.00	2.47	4.00
V.-C. C. Co.'s Farmers' Success	8.00	2.47	4.00
V.-C. C. Co.'s Myatt's Special H. G. Fertilizer	8.00	2.47	3.00
V.-C. C. Co.'s Alliance Special Fertilizer	8.00	2.47	3.00
V.-C. C. Co.'s Croom's Special Cotton Ferti- lizer, Fish and Meal Mixture.....	8.00	2.47	3.00
V.-C. C. Co.'s Menhaden Fish and Meal Mix- ture	8.00	2.47	3.00
V.-C. C. Co.'s Best's H. G. Cotton and Tobacco Guano	8.00	2.47	3.00
V.-C. C. Co.'s Diamond C. S. M.	8.00	2.47	3.00
V.-C. C. Co.'s Jumbo Peruvian Guano, Jumbo Crop Grower	8.00	2.47	3.00
V.-C. C. Co.'s Oldham's Special Compound for Tobacco, High Grade	8.00	2.47	3.00
V.-C. C. Co.'s Blake's Best	8.00	2.47	3.00
V.-C. C. Co.'s Royal High Grade Fertilizer...	8.00	2.47	3.00
V.-C. C. Co.'s Special High Grade Tobacco Fertilizer	8.00	2.47	3.00
V.-C. C. Co.'s Adams' Special	8.00	2.47	3.00
V.-C. C. Co.'s Peruvian H. G. Tobacco Guano	8.00	2.47	3.00
V.-C. C. Co.'s Red Cliff H. G. Cotton Grower.	8.00	2.47	3.00
V.-C. C. Co.'s Zeno Special Compound for To- bacco H. G.	8.00	2.47	3.00
V.-C. C. Co.'s Gold Medal H. G. Tobacco Guano	8.00	2.47	3.00
V.-C. C. Co.'s 3-8-3 Tobacco Fertilizer	8.00	2.47	3.00
V.-C. C. Co.'s Atlas Guano C. S. M.	8.00	2.47	2.50
V.-C. C. Co.'s Admiral C. S. M.	8.00	2.47	2.50
V.-C. C. Co.'s Good Luck C. S. M.	8.00	2.47	2.50
V.-C. C. Co.'s Split Silk C. S. M.	8.00	2.47	2.50
V.-C. C. Co.'s 3 Per Cent Special C. S. M. Guano, No. 3	8.00	2.47	2.00
V.-C. C. Co.'s Orange Grove Guano.....	8.00	2.26	2.50
V.-C. C. Co.'s Delta C. S. M. Guano.....	8.00	2.26	2.50
V.-C. C. Co.'s Royal Crown	8.00	2.26	2.00
V.-C. C. Co.'s Superlative C. S. M. Guano....	8.00	2.06	3.00
V.-C. C. Co.'s Blue Star C. S. M.	8.00	2.06	3.00
V.-C. C. Co.'s Potato and Cabbage Special...	8.00	1.65	10.00
V.-C. C. Co.'s Smith's Irish Potato Guano....	8.00	1.65	10.00
V.-C. C. Co.'s Pace's 5 Per Cent Special Po- tato Guano	8.00	1.65	5.00
V.-C. C. Co.'s Boon's Favorite	8.00	1.65	5.00
V.-C. C. Co.'s Monarch Brand	8.00	1.65	5.00
V.-C. C. Co.'s Virginia Bone Special	8.00	1.65	5.00
V.-C. C. Co.'s Valley Pride	8.00	1.65	4.00
V.-C. C. Co.'s Corn and Peanut Special.....	8.00	1.65	4.00
V.-C. C. Co.'s Maultsby's Fish Guano	8.00	1.65	3.00
V.-C. C. Co.'s Alliance Grain Fertilizer	8.00	1.65	2.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
V.-C. C. Co.'s Winston Special for Cotton.....	8.00	1.65	2.00
V.-C. C. Co.'s Diamond Dust C. S. M.....	8.00	1.65	2.00
V.-C. C. Co.'s Plant Food C. S. M.....	8.00	1.65	2.00
V.-C. C. Co.'s Wilson's Standard C. S. M.....	8.00	1.65	2.00
V.-C. C. Co.'s Ajax C. S. M. Guano.....	8.00	1.65	2.00
V.-C. C. Co.'s Farmers' Favorite Fertilizer C. S. M.....	8.00	1.65	2.00
V.-C. C. Co.'s Monarch Wheat and Grass Grower	8.00	1.00	7.00
V.-C. C. Co.'s Special Peanut Grower.....	8.00	1.00	4.00
V.-C. C. Co.'s Electric Grain and Grass Grower	8.00	1.00	4.00
V.-C. C. Co.'s Peerless Corn, Wheat and Grass Grower	8.00	1.00	4.00
V.-C. C. Co.'s Peanut Grower.....	8.00	.82	4.00
V.-C. C. Co.'s The Harvester.....	8.00	.82	3.00
V.-C. C. Co.'s Pinnacle Grain Grower.....	8.00	.82	3.00
V.-C. C. Co.'s S-5 Potash Mixture.....	8.00	....	5.00
V.-C. C. Co.'s Potash Mixture for Peanuts....	8.00	....	4.00
V.-C. C. Co.'s Jones' Grain Special.....	8.00	....	4.00
V.-C. C. Co.'s Special Wheat Compound.....	8.00	....	4.00
V.-C. C. Co.'s Truck Crop Fertilizer.....	7.00	4.12	7.00
V.-C. C. Co.'s Conqueror H. G. Truck Fertilizer	7.00	4.12	5.00
V.-C. C. Co.'s Pasquotank Trucker.....	7.00	3.29	8.00
V.-C. C. Co.'s Potash Potato Producer.....	7.00	3.29	8.00
V.-C. C. Co.'s Formula 44 for Bright Wrappers and Smokers	7.00	2.55	3.20
V.-C. C. Co.'s Plant Bed and High Grade....	7.00	2.26	6.00
V.-C. C. Co.'s Invincible High Grade Fertilizer.	6.00	4.12	7.00
V.-C. C. Co.'s Kitty Hawk Truck Fertilizer...	6.00	4.12	7.00
V.-C. C. Co.'s Special Truck Guano.....	6.00	4.12	7.00
V.-C. C. Co.'s Money Maker for Cabbage and Potatoes	6.00	1.65	10.00
V.-C. C. Co.'s Cotton Grower	5.00	2.88	3.50
V.-C. C. Co.'s Clinton Special H. G.	5.00	2.47	5.00
V.-C. C. Co.'s 10 Per Cent Top Dresser Extra H. G.	4.00	8.24	4.00
V.-C. C. Co.'s Fish Scrap.....	4.00	8.24	....
V.-C. C. Co.'s Dewberry Special.....	4.00	6.59	....
V.-C. C. Co.'s Dewberry Special Extra H. G....	4.00	6.56	4.00
V.-C. C. Co.'s High Grade Top Dresser.....	4.00	6.17	2.50
V.-C. C. Co.'s Sulphate of Ammonia.....	....	20.59	....
V.-C. C. Co.'s Nitrate of Soda.....	....	14.82	....
V.-C. C. Co.'s Blood.....	....	13.18	....
V.-C. C. Co.'s Special Top Dresser.....	....	7.41	3.00
V.-C. C. Co.'s Muriate of Potash.....	....	....	48.00
V.-C. C. Co.'s Sulphate of Potash.....	....	....	48.00
V.-C. C. Co.'s Manure Salts.....	....	....	20.00
V.-C. C. Co.'s Kainit .....	....	....	12.00
Allison & Addison's Fulton Acid Phosphate..	14.00	....	....
Allison & Addison's I. X. L. Acid Phosphate.	13.00	....	....
Allison & Addison's Standard Acid Phosphate	12.00	....	....
Allison & Addison's Rockets Acid Phosphate.	12.00	....	....
Allison & Addison's McGavock's Special Pot- ash Mixture	10.00	....	2.00
Allison & Addison's B. P. Potash Mixture....	10.00	....	2.00
Allison & Addison's Star Special Tobacco Ma- nure	9.00	2.26	2.00
Allison & Addison's Star Brand Special H. G.	9.00	2.06	5.00
Allison & Addison's Star Brand Guano	9.00	1.65	1.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Allison & Addison's Little Giant Grain and Grass Grower	9.00	1.00	2.00
Allison & Addison's Anchor Brand Tobacco Fertilizer	8.50	2.26	2.00
Allison & Addison's Star Brand Vegetable Guano	8.00	4.50	4.00
Allison & Addison's A. A. Guano	8.00	2.47	3.00
Allison & Addison's Anchor Brand Fertilizer.	8.00	1.65	2.00
Allison & Addison's Old Hickory Guano	8.00	1.65	2.00
Allison & Addison's Peanut Grower	8.00	1.00	4.00
Atlantic and Virginia Fertilizer Co.'s Eureka Acid Phosphate	16.00	....	....
Atlantic and Virginia Fertilizer Co.'s Valley of Virginia Phosphate	14.00	....	....
Atlantic and Virginia Fertilizer Co.'s Cren- shaw Acid Phosphate	13.00	....	....
Atlantic and Virginia Fertilizer Co.'s Our Acid Phosphate	12.00	....	....
Atlantic and Virginia Fertilizer Co.'s Eureka Bone and Potash Compound.....	10.00	....	2.00
Atlantic and Virginia Fertilizer Co.'s Eureka Ammoniated Bone Special for Tobacco.....	9.00	2.06	2.00
Atlantic and Virginia Fertilizer Co.'s Orient Complete Manure	9.00	1.65	2.00
Atlantic and Virginia Fertilizer Co.'s Virginia Truckers	8.00	4.12	5.00
Atlantic and Virginia Fertilizer Co.'s Eureka Ammoniated Bone	8.00	1.65	2.00
Atlantic and Virginia Fertilizer Co.'s Orient Special for Tobacco	8.00	1.65	2.00
Atlantic and Virginia Fertilizer Co.'s Peanut Grower	8.00	1.00	4.00
Atlantic and Virginia Fertilizer Co.'s Carolina Trucker	7.00	5.76	7.00
Charlotte Oil and Fertilizer Co.'s 15 Per Cent Acid Phosphate	15.00	....	....
Charlotte Oil and Fertilizer Co.'s Catawba Acid Phosphate	14.00	....	....
Charlotte Oil and Fertilizer Co.'s Acid Phos- phate	13.00	....	....
Charlotte Oil and Fertilizer Co.'s Dayvault's Special	12.00	....	6.00
Charlotte Oil and Fertilizer Co.'s Dissolved Bone	12.00	....	....
Charlotte Oil and Fertilizer Co.'s Oliver's Per- fect Wheat Grower	11.00	2.47	4.00
Charlotte Oil and Fertilizer Co.'s 10-2 Bone and Potash	10.00	....	2.00
Charlotte Oil and Fertilizer Co.'s High Grade Special Tobacco Fertilizer	9.00	2.06	2.00
Charlotte Oil and Fertilizer Co.'s Queen of the Harvest C. S. M.	9.00	1.65	2.00
Charlotte Oil and Fertilizer Co.'s McCrary's Diamond Bone and Potash.....	9.00	....	3.00
Charlotte Oil and Fertilizer Co.'s Groom's Special Tobacco Fertilizer	8.00	2.47	4.00
Charlotte Oil and Fertilizer Co.'s Catawba Guano B. G.	8.00	2.47	3.00
Charlotte Oil and Fertilizer Co.'s Special 3 Per Cent Guano C. S. M.	8.00	2.47	2.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Charlotte Oil and Fertilizer Co.'s Ammoniated Guano B. G.	8.00	2.06	1.50
Charlotte Oil and Fertilizer Co.'s Ammoniated Guano C. S. M.	8.00	2.06	1.50
Charlotte Oil and Fertilizer Co.'s The Leader B. G.	8.00	1.65	2.00
Charlotte Oil and Fertilizer Co.'s King Cotton Grower	8.00	1.65	2.00
Davie & Whittle's Owl Brand High Grade Acid Phosphate	16.00	....	....
Davie & Whittle's Owl Brand High Grade Dissolved Bone	14.00	....	....
Davie & Whittle's Owl Brand Acid Phosphate	13.00	....	....
Davie & Whittle's Owl Brand Dissolved Bone	12.00	....	....
Davie & Whittle's Owl Brand Acid Phosphate with Potash	10.00	....	2.00
Davie & Whittle's Owl Brand Truck Guano..	9.00	2.26	2.00
Davie & Whittle's Owl Brand High Grade 3 Per Cent Soluble Guano.....	9.00	2.06	3.00
Davie & Whittle's Owl Brand Special Tobacco Guano	9.00	2.06	2.00
Davie & Whittle's Owl Brand Truck Guano..	8.00	4.94	5.00
Davie & Whittle's Owl Brand Guano for Tobacco	8.00	2.47	3.00
Davie & Whittle's Vinco Guano.....	8.00	1.65	3.00
Davie & Whittle's Owl Brand Guano.....	8.00	1.65	2.00
Davie & Whittle's Peanut Grower.....	8.00	1.00	4.00
Durham Fertilizer Co.'s Best Acid Phosphate.	16.00	....	....
Durham Fertilizer Co.'s Standard High Grade Acid Phosphate	14.00	....	....
Durham Fertilizer Co.'s Excelsior Dissolved Bone Phosphate	14.00	....	....
Durham Fertilizer Co.'s Blacksburg Dissolved Bone	13.00	....	....
Durham Fertilizer Co.'s N. C. Farmers' Alliance Official Acid Phosphate.....	13.00	....	....
Durham Fertilizer Co.'s Double Bone Phosphate	13.00	....	....
Durham Fertilizer Co.'s Acid Phosphate....	12.00	....	....
Durham Fertilizer Co.'s Great Wheat and Corn Grower	10.50	....	1.50
Durham Fertilizer Co.'s Diamond Wheat Mixture	10.00	....	3.00
Durham Fertilizer Co.'s Standard Wheat and Corn Grower	10.00	....	2.00
Durham Fertilizer Co.'s Blue Ridge Wheat Grower	10.00	....	2.00
Durham Fertilizer Co.'s Standard Wheat Grower	10.00	....	2.00
Durham Fertilizer Co.'s Bone and Potash Mixture	10.00	....	2.00
Durham Fertilizer Co.'s L. & M. Special.....	9.00	2.47	2.00
Durham Fertilizer Co.'s Standard Guano....	9.00	1.65	2.00
Durham Fertilizer Co.'s Ammoniated Fertilizer	9.00	1.65	1.00
Durham Fertilizer Co.'s Special Plant and Truck Fertilizer	8.00	4.12	3.00
Durham Fertilizer Co.'s Durham High Grade	8.00	3.29	4.00
Durham Fertilizer Co.'s Gold Medal Brand Guano	8.00	2.47	3.00

Name and Address of Manufacturer and Name of Brand.	Avall. Phos. Acid.	Nitrogen.	Potash.
Durham Fertilizer Co.'s Yellow Leaf Tobacco Guano	8.00	2.47	3.00
Durham Fertilizer Co.'s N. C. Farmers' Alliance Official Guano.....	8.00	2.06	3.00
Durham Fertilizer Co.'s Pride of Durham Tobacco Grower	8.00	2.06	3.00
Durham Fertilizer Co.'s Raw Bone Superphosphate for Tobacco	8.00	2.06	2.00
Durham Fertilizer Co.'s Raw Bone Superphosphate	8.00	2.06	1.50
Durham Fertilizer Co.'s Genuine Bone and Peruvian Guano	8.00	1.65	2.00
Durham Fertilizer Co.'s Genuine Bone and Peruvian Guano for Tobacco	8.00	1.65	2.00
Durham Fertilizer Co.'s Blacksburg Soluble Guano	8.00	1.65	2.00
Durham Fertilizer Co.'s Progressive Farmer Guano	8.00	1.65	2.00
Durham Fertilizer Co.'s Peanut Grower.....	8.00	1.00	4.00
Durham Fertilizer Co.'s Carr's Special Wheat Grower	8.00	....	4.00
Durham Fertilizer Co.'s Best Potato Manure.	7.00	5.76	7.00
Lynchburg Guano Co.'s Ironside Acid Phosphate	16.00	....	....
Lynchburg Guano Co.'s Lynchburg High Grade Acid Phosphate	14.00	....	....
Lynchburg Guano Co.'s Arvonla Acid Phosphate	13.00	....	....
Lynchburg Guano Co.'s Spartan Acid Phosphate	12.00	....	....
Lynchburg Guano Co.'s Alpine Mixture.....	10.00	....	5.00
Lynchburg Guano Co.'s S. W. Special Bone and Potash Mixture	10.00	....	4.00
Lynchburg Guano Co.'s Dissolved Bone and Potash	10.00	....	2.00
Lynchburg Guano Co.'s Independent Standard	8.50	1.65	2.00
Lynchburg Guano Co.'s Bright Belt Guano...	8.00	2.47	3.00
Lynchburg Guano Co.'s Solid Gold Tobacco Guano	8.00	2.26	4.00
Lynchburg Guano Co.'s New Era.....	8.00	1.65	3.00
Lynchburg Guano Co.'s Lynchburg Soluble...	8.00	1.65	2.00
Lynchburg Guano Co.'s Lynchburg Soluble for Tobacco	8.00	1.65	2.00
Norfolk and Carolina Chemical Co.'s Norfolk Reliable Acid Phosphate	14.00	....	....
Norfolk and Carolina Chemical Co.'s Norfolk Best Acid Phosphate	13.00	....	....
Norfolk and Carolina Chemical Co.'s Norfolk Soluble Bone	12.00	....	....
Norfolk and Carolina Chemical Co.'s Norfolk Bone and Potash	10.00	....	2.00
Norfolk and Carolina Chemical Co.'s Norfolk Truck and Tomato Grower	8.00	4.12	5.00
Norfolk and Carolina Chemical Co.'s Amazon High Grade Manure	8.00	2.47	3.00
Norfolk and Carolina Chemical Co.'s Bright Leaf Tobacco Grower	8.00	2.47	3.00
Norfolk and Carolina Chemical Co.'s Amazon H. G. Special Tobacco Guano.....	8.00	2.47	3.00
Norfolk and Carolina Chemical Co.'s Cooper's Bright Tobacco Fertilizer	8.00	2.06	3.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Norfolk and Carolina Chemical Co.'s Genuine Slaughter House Bone Made Expressly for Tobacco	8.00	2.06	2.00
Norfolk and Carolina Chemical Co.'s Crescent Brand Ammoniated Fertilizer	8.00	1.65	2.00
Norfolk and Carolina Chemical Co.'s Genuine Slaughter House Bone Guano.....	8.00	1.65	2.00
Norfolk and Carolina Chemical Co.'s Peanut Grower	8.00	1.00	4.00
Old Dominion Guano Co.'s High Grade Acid Phosphate	14.00	....	....
Old Dominion Guano Co.'s Bone Phosphate...	13.00	....	....
Old Dominion Guano Co.'s Royster's Acid Phosphate	12.00	....	....
Old Dominion Guano Co.'s Obelisk Brand Bone and Potash	10.00	....	4.00
Old Dominion Guano Co.'s Planter's Bone and Potash Mixture	10.00	....	3.00
Old Dominion Guano Co.'s Alkaline Bone and Potash	10.00	....	2.00
Old Dominion Guano Co.'s Horne's Cotton Fertilizer	9.00	2.06	3.00
Old Dominion Guano Co.'s Standard Raw Bone Soluble Guano	9.00	1.65	1.00
Old Dominion Special for Tobacco.....	8.00	3.29	4.00
Old Dominion Guano Co.'s Farmers' Friend High Grade Fertilizer	8.00	2.47	3.00
Old Dominion Guano Co.'s Farmers' Soluble Bone High Grade Special Tobacco Manure.	8.00	2.47	3.00
Old Dominion Guano Co.'s Farmers' Friend Special Tobacco Fertilizer	8.00	2.47	3.00
Old Dominion Guano Co.'s Osceola Tobacco Guano	8.00	2.06	3.00
Old Dominion Guano Co.'s Farmers' Friend Fertilizer	8.00	1.65	2.00
Old Dominion Guano Co.'s Old Dominion Special Wheat Guano	8.00	1.65	2.00
Old Dominion Guano Co.'s Old Dominion Soluble Tobacco Guano	8.00	1.65	2.00
Old Dominion Guano Co.'s Bullock's Cotton Guano	8.00	1.65	2.00
Old Dominion Guano Co.'s Soluble Guano....	8.00	1.65	2.00
Old Dominion Guano Co.'s Peanut Grower....	8.00	1.00	4.00
Old Dominion Guano Co.'s Miller's Special Wheat Mixture	8.00	....	4.00
Old Dominion Guano Co.'s 7-7-7 Truck Guano	7.00	5.76	7.00
Old Dominion Guano Co.'s Potato Manure....	7.00	4.12	8.00
Old Dominion Guano Co.'s 7 Per Cent Truck Fertilizer	6.00	5.76	6.00
Old Dominion Guano Co.'s 6-7-5 Truck Guano	6.00	5.76	5.00
Old Dominion Guano Co.'s Special Sweet Potato Guano	6.00	1.65	6.00
Old Dominion Guano Co.'s 10 Per Cent Truck Fertilizer	5.00	8.24	2.50
Powers, Gibbs & Co.'s Almont High Grade Acid Phosphate	14.00	....	....
Powers, Gibbs & Co.'s Fulp's Acid Phosphate.	13.00	....	....
Powers, Gibbs & Co.'s Cotton Brand Acid Phosphate	13.00	....	....
Powers, Gibbs & Co.'s Almont Acid Phosphate.	12.00	....	....

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Powers, Gibbs & Co.'s Cotton Brand Acid Phosphate	12.00	....	....
Powers, Gibbs & Co.'s Almont Acid Phosphate and Potash	10.50	....	1.50
Powers, Gibbs & Co.'s Almont Wheat Mixture.	10.00	....	3.00
Powers, Gibbs & Co.'s Dissolved Bone and Potash	10.00	....	2.00
Powers, Gibbs & Co.'s Cotton-seed Meal Standard Guano	9.00	2.47	2.00
Powers, Gibbs & Co.'s Truck Farmers' Special Ammoniated Guano	8.00	3.29	5.00
Powers, Gibbs & Co.'s Cotton Brand Ammoniated Dissolved Bone	8.00	3.29	4.00
Powers, Gibbs & Co.'s Old Kentucky High Grade Tobacco Manure	8.00	2.47	3.00
Powers, Gibbs & Co.'s Cotton Belt Ammoniated Guano	8.00	2.47	2.00
Powers, Gibbs & Co.'s Carolina Golden Belt Ammoniated Guano for Tobacco.....	8.00	2.06	3.00
Powers, Gibbs & Co.'s Powers' Ammoniated Guano	8.00	2.06	2.00
Powers, Gibbs & Co.'s Gibbs' Ammoniated Guano	8.00	2.06	1.50
Powers, Gibbs & Co.'s Almont Soluble Ammoniated Guano	8.00	1.65	2.00
Powers, Gibbs & Co.'s Cotton-seed Meal Soluble Ammoniated Guano	8.00	1.65	2.00
Powers, Gibbs & Co.'s Eagle Island Ammoniated Guano	8.00	1.65	2.00
Powers, Gibbs & Co.'s Peanut Grower.....	8.00	1.00	4.00
Southern Chemical Co.'s Comet 16 Per Cent Acid Phosphate	16.00	....	....
Southern Chemical Co.'s Click's 16 Per Cent Acid Phosphate	16.00	....	....
Southern Chemical Co.'s Red Cross 14 Per Cent Acid Phosphate	14.00	....	....
Southern Chemical Co.'s Victor Acid Phosphate	13.00	....	....
Southern Chemical Co.'s Chatham Acid Phosphate	13.00	....	....
Southern Chemical Co.'s Reaper Grain Application	12.00	....	3.00
Southern Chemical Co.'s Tar Heel Acid Phosphate	12.00	....	....
Southern Chemical Co.'s Horseshoe Acid Phosphate	12.00	....	....
Southern Chemical Co.'s Quickstep Bone and Potash	11.00	....	5.00
Southern Chemical Co.'s Solid South.....	10.00	....	6.00
Southern Chemical Co.'s Winner Grain Mixture	10.00	....	4.00
Southern Chemical Co.'s Farmers' Pride Bone and Potash	10.00	....	3.00
Southern Chemical Co.'s Winston Bone and Potash	10.00	....	2.00
Southern Chemical Co.'s Mammoth Corn Grower	10.00	....	2.00
Southern Chemical Co.'s Mammoth Wheat and Grass Grower	10.00	....	2.00
Southern Chemical Co.'s Sun Brand Guano...	9.00	2.06	5.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Southern Chemical Co.'s George Washington Plant Bed Fertilizer for Tobacco.....	8.00	2.47	2.50
Southern Chemical Co.'s Pilot Ammoniated Guano Special for Tobacco.....	8.00	2.06	3.00
Southern Chemical Co.'s Electric Tobacco Guano	8.00	1.65	2.00
Southern Chemical Co.'s Electric Standard Guano	8.00	1.65	2.00
Southern Chemical Co.'s Yadkin Complete Fertilizer	8.00	1.65	2.00
Southern Chemical Co.'s Click's Special Wheat Compound	8.00	....	4.00
J. G. Tinsley & Co.'s Powhatan Acid Phosphate	14.00	....	....
J. G. Tinsley & Co.'s Dissolved S. C. Bone....	13.00	....	....
J. G. Tinsley & Co.'s Stonewall Brand Acid Phosphate	12.00	....	....
J. G. Tinsley & Co.'s Bone and Potash Mixture	10.00	....	2.00
J. G. Tinsley & Co.'s Powhatan Tobacco Fertilizer	9.00	2.47	3.00
J. G. Tinsley & Co.'s Tobacco Fertilizer.....	8.00	3.29	2.50
J. G. Tinsley & Co.'s Richmond Brand Guano.	8.00	2.47	3.00
J. G. Tinsley & Co.'s Peruvian H. G. Tobacco Guano	8.00	2.47	3.00
J. G. Tinsley & Co.'s Killickinick Tobacco Mixture	8.00	2.06	3.00
J. G. Tinsley & Co.'s Appomattox Standard Tobacco Grower	8.00	1.65	2.00
J. G. Tinsley & Co.'s Lee Brand Guano.....	8.00	1.65	2.00
J. G. Tinsley & Co.'s Stonewall Guano.....	8.00	1.65	2.00
J. G. Tinsley & Co.'s Stonewall Tobacco Guano	8.00	1.65	2.00
J. G. Tinsley & Co.'s Peanut Grower.....	8.00	1.00	4.00
J. G. Tinsley & Co.'s Special Irish Potato Guano	6.00	5.76	6.00
J. G. Tinsley & Co.'s 7 Per Cent Ammoniated Guano for Truck.....	6.00	5.76	6.00
J. G. Tinsley & Co.'s Irish Potato Guano.....	6.00	4.94	6.00
J. G. Tinsley & Co.'s Strawberry Grower.....	6.00	3.29	4.00
J. G. Tinsley & Co.'s Top Dresser.....	5.00	9.06	....
J. G. Tinsley & Co.'s 10 Per Cent Truck Guano	5.00	8.24	2.50
S. W. Travers & Co.'s Champion Acid Phosphate	16.00	....	....
S. W. Travers & Co.'s Dissolved Acid Phosphate	14.00	....	....
S. W. Travers & Co.'s Standard Dissolved S. C. Bone	13.00	....	....
S. W. Travers & Co.'s Capital Dissolved Bone.	12.00	....	....
S. W. Travers & Co.'s Capital Bone and Potash Compound	10.00	....	2.00
S. W. Travers & Co.'s National Tobacco Fertilizer	8.50	1.85	2.25
S. W. Travers & Co.'s Capital Truck Fertilizer	8.00	3.29	3.00
S. W. Travers & Co.'s Capital Tobacco Fertilizer	8.00	3.29	3.00
S. W. Travers & Co.'s Big Leaf Tobacco Grower	8.00	2.47	3.00
S. W. Travers & Co.'s Capital Cotton Fertilizer	8.00	2.06	2.00
S. W. Travers & Co.'s National Fertilizer.....	8.00	1.65	2.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
S. W. Travers & Co.'s National Special Tobacco Fertilizer	8.00	1.65	2.00
S. W. Travers & Co.'s Beef Blood and Bone Fertilizer	8.00	1.65	2.00
S. W. Travers & Co.'s Peanut Grower	8.00	1.00	4.00
S. W. Travers & Co.'s Special Wheat Compound	8.00	....	4.00
S. W. Travers & Co.'s 7 Per Cent Truck Fertilizer	6.00	5.76	5.00
Virginia State Fertilizer Co.'s Bull Run Acid Phosphate	16.00	....	....
Virginia State Fertilizer Co.'s Gilt Edge Brand Acid Phosphate	14.00	....	....
Virginia State Fertilizer Co.'s Clipper Brand Acid Phosphate	13.00	....	....
Virginia State Fertilizer Co.'s Lurich Acid Phosphate	12.00	....	....
Virginia State Fertilizer Co.'s Alps Brand Acid Phosphate	12.00	....	....
Virginia State Fertilizer Co.'s Mountain Top Bone and Potash	10.00	....	5.00
Virginia State Fertilizer Co.'s XX Potash Mixture	10.00	....	4.00
Virginia State Fertilizer Co.'s Dissolved Bone and Potash	10.00	....	2.00
Virginia State Fertilizer Co.'s Number One Soluble Bone	9.00	1.65	2.00
Virginia State Fertilizer Co.'s Highland King	9.00	1.65	1.00
Virginia State Fertilizer Co.'s Gamecock Special for Tobacco	8.50	1.65	2.00
Virginia State Fertilizer Co.'s High Grade Tobacco Guano	8.00	2.47	3.00
Virginia State Fertilizer Co.'s Bull Dog Soluble Guano	8.00	2.47	3.00
Virginia State Fertilizer Co.'s Dunnington's Special Formula for Tobacco	8.00	2.47	3.00
Virginia State Fertilizer Co.'s Peerless Special Tobacco Guano	8.00	2.47	3.00
Virginia State Fertilizer Co.'s Buffalo Guano	8.00	2.06	3.00
Virginia State Fertilizer Co.'s Austrian Tobacco Grower	8.00	2.06	2.00
Virginia State Fertilizer Co.'s Gilt Edge Special Tobacco Guano	8.00	2.06	2.00
Virginia State Fertilizer Co.'s Battle Axe Tobacco Guano	8.00	1.65	2.00
Virginia State Fertilizer Co.'s Virginia State Guano	8.00	1.65	2.00
Virginia State Fertilizer Co.'s Gilt Edge Brand Dissolved Bone and Potash	8.00	....	4.00
Star Brand Ground Slag	17.00	....	....
H. G. Southern Fertilizer Co.'s Scott's Gossypium Phospho	10.00	1.65	2.00
Westfield's High Grade Special Tobacco Guano	9.00	2.47	3.00
<i>Thomas Wakefield, Friendship, N. C.—</i>			
Pure Bone Meal	21.00	4.10	....
<i>Williams & Clark Fertilizer Co., Charleston, S. C.—</i>			
Standard Americus Ammoniated Bone Superphosphate	9.00	1.85	1.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
<i>Winborne Guano Co., Norfolk, Va.—</i>			
High Grade Acid Phosphate.....	16.00	....	....
Standard Acid Phosphate.....	14.00	....	....
Best Bone and Potash.....	11.00	....	4.00
Soluble Bone and Potash.....	10.00	....	2.00
Big Triumph Guano.....	8.00	3.30	4.00
Farmers Select Guano.....	8.00	2.47	4.00
Winborne's King Guano.....	8.00	2.47	3.00
Winborne's Special Tobacco Guano.....	8.00	2.47	3.00
Winborne's Crop Grower	8.00	1.65	2.00
Winborne Excelsior Guano.....	8.00	1.65	2.00
Standard Eureka Guano.....	8.00	1.65	2.00
Climax Peanut Guano	8.00	.82	4.00
Premium Top Dresser.....	6.00	7.40	3.00
Special 5-6-7 Truck Guano.....	6.00	4.10	7.00
Winborne's Tip Top Tobacco Guano.....	6.00	3.30	5.00
Winborne's Sweet Potato Guano.....	6.00	2.47	6.00
Big Crop 7 Per Cent Guano.....	5.00	5.75	5.00
Nitrate of Soda.....	....	15.00	....
Winborne's Top Dresser.....	....	7.40	3.00
Muriate of Potash.....	....	....	50.00
Sulphate of Potash.....	....	....	48.00
Genuine German Kainit.....	....	....	12.00

T. W. Wood & Sons, Richmond, Va.—

Wood's Pure Animal Bone Meal.....Total	23.00	3.60	....
Ground Basic Slag.....Total	17.00	....	....
Standard H. G. Acid Phosphate.....	16.00	....	....
Standard High Grade Acid Phosphate.....	14.00	....	....
Standard Bone and Potash Mixture.....	10.00	....	2.00
Standard Corn Fertilizer.....	9.00	1.23	1.00
Standard Wheat Fertilizer.....	9.00	1.23	1.00
Standard High Grade Truck Fertilizer.....	8.00	4.93	6.00
Standard Market Grower Fertilizer.....	8.00	3.29	4.00
Standard Vegetable Fertilizer.....	8.00	2.47	3.00
Standard Potato Fertilizer.....	8.00	1.65	5.00
Standard Grain and Grass Fertilizer.....	8.00	1.65	2.00
Standard Crop Grower Fertilizer.....	8.00	1.03	2.00
Wood's Lawn Enricher.....	6.00	2.47	3.00
Nitrate of Soda.....	....	15.63	....
Muriate of Potash.....	....	....	50.00
Sulphate of Potash.....			48.00
Kainit			12.00

Wessell, Duval & Co., New York—

Nitrate of Soda.....		14.85	
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Wilson Chemical Co., Wilson, N. C.—

16 Per Cent Acid Phosphate.....	16.00		
14 Per Cent Acid Phosphate.....	14.00		
Bone and Potash Mixture No. 3.....	10.00	....	5.00
Bone and Potash Mixture No. 2.....	10.00	....	4.00
Bone and Potash Mixture No. 1.....	10.00	....	2.00
W. C. Co.'s Tobacco Grower.....	9.00	2.25	2.00
Special Cotton Grower.....	8.50	1.65	2.00
8-4.50-8 for Tobacco.....	8.00	3.70	7.00
8-4.50-7 for Cotton.....	8.00	3.70	7.00
Wilson Chemical Co.'s Gold Medal Cotton Fer- tilizer	8.00	3.30	4.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Wilson Chemical Co.'s Gold Medal Tobacco Fertilizer	8.00	3.30	4.00
Planters Formula No. 1 for Fine Tobacco....	8.00	2.47	10.00
Planters Formula No. 2 for Fine Tobacco....	8.00	2.47	7.00
East Carolina Cotton Grower.....	8.00	2.47	3.00
East Carolina Tobacco Grower.....	8.00	2.47	3.00
Cotton States Standard.....	8.00	2.00	2.00
Nitrate of Soda.....	....	14.82	....
Muriate of Potash.....	....	....	50.00
Sulphate of Potash.....	....	....	50.00
H. G. 16 Per Cent Kainit.....	....	....	16.00
Genuine German Kainit.....	....	....	12.00

The J. R. Young Fertilizer Co., Norfolk, Va.—

High Grade 16 Per Cent Acid Phosphate.....	16.00	....	....
14 Per Cent Acid Phosphate.....	14.00	....	....
Special Bone and Potash Compound.....	10.00	....	4.00
Bone and Potash Mixture.....	10.00	....	2.00
J. R. Young's 2 $\frac{3}{4}$ -9-2 Guano.....	9.00	2.26	2.00
J. R. Young's Corn Grower.....	9.00	1.00	2.00
J. R. Young's 4-8-4 Crop Grower.....	8.00	3.29	4.00
J. R. Young's 3-8-3 Guano for Cotton.....	8.00	2.47	3.00
J. R. Young's New Process 3-8-3 Guano for Tobacco	8.00	2.47	3.00
J. R. Young's New Process 2-8-2 Guano for Cotton, Corn and Peanuts.....	8.00	1.65	2.00
J. R. Young's Special 2-8-2 Guano.....	8.00	1.65	2.00
Pasquotank 5-6-7 Potato Grower.....	6.00	4.11	7.00
J. R. Young's Special Guano for Potatoes....	6.00	4.11	5.00
J. R. Young's Improved Fish and Bone Manure	6.00	3.29	4.00
J. R. Young's 3-6-6 Special Guano for S. P....	6.00	2.47	6.00
J. R. Young's New Process Guano for Truck.	5.00	5.67	3.50
J. R. Young's 4-4-6 Special for Tobacco.....	4.00	3.29	6.00
Nitrate of Soda.....	....	14.84	....
Muriate of Potash.....	....	....	49.00
Sulphate of Potash.....	....	....	48.00
J. R. Young's German Kainit.....	....	....	12.00

LEAF TOBACCO SALES FOR JANUARY, 1913.

Pounds sold for producers, first hand.....	11,169,518
Pounds sold for dealers.....	514,806
Pounds resold for warehouses.....	754,535
Total.....	12,438,859

LEAF TOBACCO SALES FOR FEBRUARY, 1913.

Pounds sold for producers, first hand.....	3,711,021
Pounds sold for dealers.....	276,339
Pounds resold for warehouses.....	366,783
Total.....	4,354,143

THE BULLETIN
OF THE
NORTH CAROLINA
DEPARTMENT OF AGRICULTURE
RALEIGH

Volume 34--No. 4.

APRIL, 1913.

Whole No. 182

SOME IMPORTANT DISEASES OF FIELD CROPS
IN NORTH CAROLINA



Anthracnose of Cotton. Bolls showing various stages of the rot.

SENT FREE TO CITIZENS ON APPLICATION.

Entered at the Postoffice at Raleigh, N. C., as second class matter,
February 7, 1901, under act of June 6, 1900.

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†E. H. MATHEWSON.....	Cooperative Assistant in Tobacco Investigations.
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A. K. ROBERTSON.....	Assistant in Boys' Corn Club Work.

R. W. SCOTT, JR., Assistant Director Edgecombe Test Farm, Rocky Mount, N. C.

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†Assigned by the Bureau of Plant Industry, United States Department of Agriculture.

LETTER OF TRANSMITTAL

HON. W. A. GRAHAM,
Commissioner of Agriculture.

SIR:—I am transmitting herewith manuscript on "Some Important Diseases of Field Crops in North Carolina," by H. R. Fulton and J. R. Winston, which I recommend for publication as the April BULLETIN.

Very respectfully,

B. W. KILGORE,
Director.

Approved for printing:
W. A. GRAHAM,
Commissioner.

SOME IMPORTANT DISEASES OF FIELD CROPS IN NORTH CAROLINA

By H. R. FULTON, Plant Pathologist, and J. R. WINSTON, Assistant in Plant Pathology, North Carolina Agricultural Experiment Station.

The object of this BULLETIN is to give crop growers in a concise form the main facts about certain field crop diseases that are of importance in North Carolina. Some of these have not yet become thoroughly established within our territory, nevertheless their destructiveness and the difficulty of coping with them make a warning appropriate. It is of first importance to prevent their introduction into new territory and to restrict their spread in localities where they have appeared. It has been impossible to discuss all the diseases of field crops. It is hoped that the descriptions will insure the correct identification of those included here. If there is any question on this score, or if other diseases attract attention, the Division of Plant Pathology, Agricultural Experiment Station, will be glad to render any aid possible.

In preparing this account the experience of other workers has been freely drawn upon, and it is regretted that the many sources of valuable information can not be acknowledged specifically. One is at once struck with the fact that the most serious group of diseases in this State is that of the soil diseases—those that persist in the soil for years, entering the plants mainly through their roots. Very valuable work upon certain diseases of this class has been done by Dr. Erwin F. Smith, Mr. W. A. Orton, and Dr. Ernst A. Bessey, of the United States Bureau of Plant Industry. Mention should also be made of the very successful work on cotton anthracnose by Professor H. W. Barre, of the South Carolina Experiment Station.

The distribution in this State of the diseases here discussed is by no means fully known. The records at hand indicate merely their general range.

CLOVER AND ALFALFA STEM ROT.

Distribution in North Carolina.—The disease has been reported from Alamance, Granville, Guilford, Halifax, Lincoln, Mecklenburg, Rowan, and Wake counties.

Plants Affected.—Crimson clover, red clover, alsike clover, alfalfa.

This disease is sometimes called sclerotiniose and wilt.

Symptoms.—Individual plants die here and there over the field. If the stems are succulent they collapse in a dry mass on the ground; if more woody, they stand erect and the dying plants are more conspicuous. The stems are decayed, usually near, but frequently just below, the surface of the ground. On the dead parts there will be found the white felt-like growth of the fungus and intermingled some irregularly shaped, firm, black masses that vary from the size of a clover seed to

that of a cowpea. These bodies are called *sclerotia*, and are the most distinctive indication of this disease. A less serious root rot of clovers, caused by the fungus *Rhizoctonia*, may show similar general symptoms, but the sclerotia are lacking.

Cause.—The cause of this disease is a fungus, *Sclerotinia*, that may live over in the soil on decaying vegetable material from one season to the next. The sclerotia are particularly adapted for withstanding extremes of temperature and moisture and on the return of favorable conditions may start the disease. The disease has only recently begun to be serious in the United States. It is closely similar to the wilt or drop of lettuce.



FIG. 1. Stem Rot of Clover. Slightly affected plant on the left, badly affected one on the right. Note sclerotia on stem in the middle; one is just above the head of the arrow and another smaller, round one is in line with the arrow at the center.

Dissemination.—The smallest of the sclerotia are about the size of clover seeds and are not removed in the usual processes of cleaning. A few of these may start the disease in a field. It will spread gradually from these centers by growth of the fungous threads to neighboring plants, causing a slow but progressive enlargement of affected areas. Preparation of the soil for later crops will distribute the infective material up and down the rows, and there is danger of a large increase the second and third years, if susceptible crops are grown on the land. Any transfer of infected soil would serve to spread this disease, either through washing by water or through the agency of farm implements or stock. In using soil for inoculation of leguminous crops with tuber-

cle organisms extreme care must be taken to avoid any field having this or any other soil disease. While no positive statement can be made it is very likely that the feeding of affected plants would lead to the infection of stable manure, by means of which the disease would be carried readily to new places.

Infection.—Infection is favored by wet seasons, by high moisture content of the soil, by mild winters, and by rank growth of the host plants.



FIG. 2. Stem Rot of Alfalfa. Note the white growth of the fungus and the sclerotia or resting bodies. Photo. by F. C. Stewart

Control.—As soon as the disease appears adopt a rotation of crops that will keep susceptible crops off the land for three to five years. Guard against feeding affected plants to stock or distributing infected soil in any way. Be sure before buying that clover or alfalfa seed is free from contamination with the sclerotia. In small plantings where only a few plants are affected it may be worth while to put dry straw on the spots, sprinkle with kerosene oil and burn.

CORN EAR ROT.

Distribution.—This trouble has been reported from all parts of the State, but with most frequency from the mountain section.

The only plant affected is corn.

Symptoms.—Affected ears ripen prematurely, the husks are tight, the ears light in weight, under sized, dark in color, and affected with a dry decay. There is a moldy growth between the grains and over their tips. The corn shelled from affected ears weighs only half as much as that shelled from sound ears of the same dimensions. Very minute black dots can be seen on the affected cobs. Old stalks also show such dark dots just under the rind.

Cause.—This condition is caused by the fungus *Diplodia zeae*. While several other fungi may be responsible for other types of ear rot of corn this is usually the most destructive one. Some of these can attack the ears only when they are harvested before maturity and stored improperly. The fungus in question is an active parasite, and establishes itself on the living corn plant.

Dissemination.—Old stalks or stubble in the field may carry the disease over from one season to the next. Wind distributes the spores. The storage rots hold over in dirty bins.

Infection.—The *Diplodia* fungus can enter the roots of the plant, grow upward in the stalk, and invade the ear through the shank. Also spores deposited by the wind can infect the young silk and thus reach the ear. The fungous threads enter the seed, but these seed do not germinate, and therefore do not directly transmit the disease. Fields devoted continuously to corn suffer more than others. Wet weather conditions greatly increase the chances of the fungus to affect the corn.

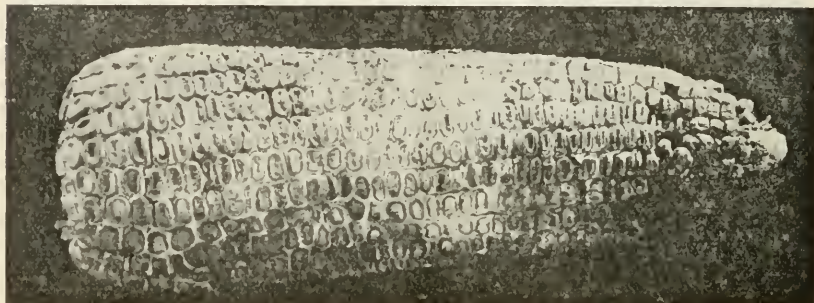


FIG. 3. Corn Ear Rot. Note the white growth of the fungus and the shriveled condition of the grain. Photo. by E. Meade Wilcox.

Control.—Destroy trash in the field as much as possible by fall plowing. Do not plant corn oftener than once in three years in fields or spots where the disease is bad. Be sure that ears are mature before harvesting and are cured before storing. Storage places must be clean, dry and well ventilated. Disinfect old bins or barrels with formaldehyde solution, one pint full strength to forty gallons of water. Feeding moldy corn to stock may bring on serious disease symptoms, and must be done with the greatest caution. It is best not to feed moldy corn at all.

COTTON ANTHRACNOSE.

Distribution in North Carolina.—Anthracnose has been reported from the majority of cotton growing counties, from Cleveland and Iredell to the coast, and northward to those bordering on the Virginia line. It has been introduced largely in seed from more southern States where the disease is very widespread.

Cotton is the only plant affected.

Other names for the disease are pink boll and boll rot.

Symptoms.—Bolls develop brown sunken spots that enlarge to about half an inch, and develop a pink growth over the surface. Affected bolls split open prematurely. (See cut on front cover.) In badly affected bolls the lint is rotted or becomes discolored and weak. Seedling plants develop brown ulcers on the seed leaves, or on the lower stem, in which latter case the plants die and the stand may thus be seriously affected. The pinkish growth distinguishes anthracnose from other types of boll rot. Seedling plants may be attacked by *Rhizoctonia*, causing "sore-

shin," and occasionally by other damping-off organisms; and it is difficult to describe the differences between these and the effects of anthracnose on seedling plants.

Cause.—The disease is caused by the fungus *Glomerella (Colletotrichum) gossypii*. It may develop inconspicuously on leaf-scars, or other weakened tissues of the cotton plant. In partially affected bolls it may enter the seeds, and will remain dormant in them for several years, resuming its growth when the seeds germinate.

Dissemination.—Seeds from infected bolls are infected internally, and are the chief means of dissemination. External contamination of the seeds by spores may occur from the dripping or splattering of rain-drops from affected to sound parts of the plant, or by ginning with machinery that has become contaminated. Because the spores are sticky, and are not easily dislodged when dry, wind does not play an important part in spreading the disease, and it spreads rather slowly from plant to plant in the field. The fungus may persist on old affected stalks in the field for about a year.

Infection.—Bolls may be infected at any time from the blossoming period until they are almost grown. Moist conditions are necessary for this to occur, and the disease is most serious, other things being equal, in wet seasons, or even in the moister parts of a field. Cotton varieties show differences in natural susceptibility; but often the differences noted in the amount of disease in varieties are due mainly to differences in the chances for seed infection the previous year.

Control.—The main thing is to avoid planting infected seed. Unselected seed from a field where the disease has existed will carry the infection. Seed should not be brought from a distance unless assurance can be had of its freedom from infection. No seed treatment can successfully reach the internal infection, and disinfection of the exterior merely is not worth while as a general practice. Seed safe for planting can be secured from a moderately infected field by marking stalks that are not affected and are some yards away from diseased plants, picking these separately, and ginning with a well cleaned gin. If only a small lot of seed can be secured in this way it can be used for starting a seed plat from which clean seed for the general planting can be had the second year. The sound seed must be planted where diseased cotton did not grow the year before; or if necessary to plant cotton in the same field, fall plowing to bury the stalks will render it safe. There is no evidence that cotton seed or cottonseed meal used as fertilizer, or that stable manure plays any important part in the spread of the disease. It does not persist in the soil. Some hold that if infected seed is kept until the second season it will be reasonably safe to plant; but this matter needs further testing.

COTTON "RUST."

Distribution.—This disease is common in light sandy lands of the North Carolina cotton belt.

Cotton is the only crop affected.

The disease is also known as black rust and leaf blight. The name "rust" is somewhat objectionable because it refers more appropriately to diseases caused by the true rust group of fungi.

Symptoms.—The leaves turn yellow and then brown, becoming dry and dropping from the plants; these are often stunted in growth. It usually occurs in certain sections of a field, all plants in the area showing the condition, which shades off at the borders of the area. The disease is distinguished from wilt by the absence of any discoloration of woody part of the stem, and from root-knot by the absence of the galls. Red spider injury to the leaves is frequently called "red rust," and is an entirely different trouble.

Cause.—This disease is not caused directly by any organism, although certain weak fungi may establish themselves on the already weakened leaves, and perhaps hasten their destruction. The proper functioning of the leaves is deranged through unfavorable soil conditions. These may be: (1) lack of water; (2) lack of drainage; (3) lack of food material, especially potash, and (4) lack of humus. The trouble prevails mostly on light sandy soils, particularly in places where there is a good chance for leaching. Prolonged drouths after heavy rains are apt to develop "rust" prominently on soils of the types indicated.

Control.—Try to determine which ones of the factors enumerated seem to be responsible. Humus may be added in the form of stable manure or of green crops turned under. Use potash and phosphoric acid as a fertilizer at a rate of something like 300 to 800 or more pounds to the acre to supply the plant food deficiencies. Drain wet lands. Deep preparation of the land and frequent shallow cultivations will help to lessen the trouble.

COTTON WILT.

Distribution in North Carolina.—This disease is known to occur in Anson, Davidson, Duplin, Johnston, Lenoir, Mecklenburg, Moore, Nash, Pitt, Richmond, Robeson, Scotland, and Wayne counties. It is probably in small areas in each of these as yet.

Plants Affected.—Cotton and okra.

The disease is known also as blackheart and blackroot.

Symptoms.—The leaves may wilt suddenly, or may turn yellow slowly and drop. Affected plants are usually somewhat stunted in growth, and bolls may be poorly formed. On cutting across the stem dark brown discoloration of more or less of the wood can be seen. Many of the roots are blackened or dead. It may appear at any time after the cotton is about eight inches high.

Cause.—The fungus, *Fusarium rasilnfectum*, enters the roots from the soil, grows upward in the sap tubes, discoloring and clogging them, and producing the wilt symptoms.

Dissemination.—The fungus can live in the soil for a number of years and may be transferred in even small amounts of contaminated soil. Light sandy soils offer conditions best for its development. A stable may harbor the fungus in the manure for a long time if once contaminated. Spores are produced on the surface of dead stalks in the field, and some of these may become lodged in the lint, and remain in the fuzz of the seed. But on the whole the chances for seed to act as a carrier seem rather slight.

Infection is through the root system in practically all cases, and is greatly favored by nematode injury to the roots. There is apparently



FIG. 4. Cotton Wilt. General effect on young plant, and cross sections of stem on larger scale showing characteristic discoloration of wood. After Orton, Farmers' Bulletin 333, U. S. Dept. of Agriculture.

no spread in the field except through the soil. This is by the slow growth of the fungus through it, or by any transfer by implements in cultivation or by other means.

Control.—Do not plant seed that have had a chance to become contaminated externally. Do not allow stock to run on infected land. Clean all implements after using on an infected field. Guard against manure contamination. If only a small area is involved it will be advisable to remove and burn affected stalks. It would be well to fence off such an area and handle it separately. Fertilizers have no influence directly on the disease and good results in crop yield will result from the proper use of them and of uncontaminated manure. Two varieties of upland cotton, Dixie and Dillon, possess a marked resistance to the disease, and may be grown in a proper rotation on infested land. The Dillon seems better adapted to North Carolina conditions. It is an improved strain of Jackson Limbless, with some but not all, of the objectionable features of that type modified. It has produced one and a half bales to the acre under good cultivation on land where other varieties were a total failure because of wilt; and this quality of resistance makes it valuable on wilt infested soils in spite of its being only an average cotton otherwise. Four other varieties that show a considerable degree of wilt resistance and are worthy of trial are Wood (similar to Hawkins), a strain of Covington-Toole, Modella (a selection from Excelsior), and several strains of Cook. Cotton should not be planted on infested land oftener than once in three years. If cotton wilt alone is present, any crops other than cotton and okra may be planted on the land. Frequently nematode root-knot occurs also, in which case crops susceptible to it must be avoided. (See under "Root-Knot of Various Crops," in this BULLETIN.) A suggested rotation* under such circumstances includes winter oats or rye, followed by Iron cowpeas thickly sown; when these are off, the land is put in winter grain again, which may be followed by corn with Iron cowpeas between the rows; a resistant cotton may be planted the third year.

COWPEA WILT.

Distribution in North Carolina.—Reports have been received from Cabarrus, Cumberland, Granville, Johnston, Mecklenburg, Moore, Wake, and Wayne counties.

Cowpea is the only crop affected.

Symptoms.—The leaves turn yellow and drop prematurely, beginning with the oldest. Often the stems are left bare except for a few young leaves at the top. If the plants are in a succulent condition, wilting of the leaves may be prominent. Very young plants may rot or damp off near the base. Affected plants are scattered through a field or occur in particular spots. On cutting across the stem a dark brown discoloration of the wood tissue is prominent. Some of the roots are black and dead.

This disease may be confused with nematode injury or with *Rhizoctonia* root rot. The presence of the galls, which must not be confused with the bacterial nodules or tubercles, distinguishes the former; and

*Suggested by W. A. Orton in Farmers' Bulletin No. 333.

the more superficial development of the rot on the lower stem, and the absence of internal wood discoloration distinguish the latter.

Cause.—This disease is caused by the fungus *Fusarium tracheiphilum*. It is closely similar in form and habits to the fungi causing wilts of cotton, watermelon, tomato, Irish potato, sweet potato, etc. But the cowpea fungus seems not to be able to infect these plants, and the cowpea not to be susceptible to the other wilt fungi. However, two or more of these wilt fungi may sometimes inhabit the same soil. The fungus lives in the soil from year to year and increases with the successive planting of susceptible varieties of cowpeas on the land. It enters the plants through the roots, grows upward in the sap-tubes of



FIG. 5 Wilt of cowpea. The plant on the left shows no evidence of the disease. The other two show advanced stages.

the stems discoloring the wood tissues along its path. The interference with water conduction brings on the symptoms of wilt. After a plant is dead the fungus may grow out to the surface and form a crop of pinkish spores there.

Dissemination.—The chances for the spores to play an important part in the spread of the disease seem relatively slight; and seed probably do not act as carriers, through external contamination, with great frequency. The feeding of infected plants to stock will introduce the disease into the manure, where it flourishes; and by this means it may be scattered over the farm. The fungus remains alive, although dormant, for long periods in thoroughly dried stalks of affected plants, and well cured hay may produce manure contamination. Transfer of infected soil in any way will spread the disease. In using soil for legume inoculation be sure that this and every other soil disease is absent from the field from which it is taken.

Infection.—Infection seems to occur entirely through the roots. Nematode injury furnishes a ready way of entrance for the fungus, and the disease is always worst where nematodes infest the soil along with the wilt fungus. But either trouble may exist independently of the

other. The Iron variety of cowpea possesses a high natural resistance to the wilt disease as well as to nematode injury. Certain hybrid varieties, such as the Brabham, have been bred with a similar resistance.

Control.—Avoid spreading the disease by means of infected soil or manure. Infected hay, either fresh or cured, is a source of danger to the manure. Cowpea seed from an uncertain source may be treated with formaldehyde solution, one pint of full strength or 40 per cent formaldehyde in forty gallons of water, before planting as a precaution against spore contamination; but it is not certain that this is a common source of danger. Plant the Iron or some other resistant variety of cowpea on infected land. Tests in North Carolina for six years in comparison with thirty varieties give the Iron cowpea a rank of eighth in seed production and of first in hay production.

GRAIN RUSTS.

This discussion has reference to four species of rust, (1) the stem rust or black rust of wheat, oats, and rye (*Puccinia graminis*); (2) the leaf rust or orange rust of wheat (*Puccinia rubigo-vera tritici*); (3) the leaf rust or orange rust of rye (*Puccinia rubigo-vera secalis*); and (4) the leaf rust or crown rust of oats (*Puccinia coronata*). Besides



FIG. 6. Leaf Rust of Rye. The granular appearance of these summer spore pustules does not show distinctly in the photograph.

these, barley is attacked by the stem rust named above, and in addition by a leaf rust; and corn is attacked by still another species. These last are omitted from discussion because of their less economic importance.

Any one of the four forms under discussion may be expected on the appropriate crop in any section of the State, although there is considerable seasonal and local variation in the amount of each.

Symptoms.—Small, elongated spots with a powdery appearance and a reddish-yellow or orange color, are the conspicuous features of these rusts. Sometimes the term "rust" is applied erroneously to any disorder that produces discoloration of the leaves. The stem rust develops on stems and sheaths more frequently than on the blades; and in its later development on maturing plants produces prominent granular black

streaks. It is by far the most destructive type of rust, and at the same time the one least commonly seen. The three leaf rusts, as their name implies, attack the blades most conspicuously. Their later stage of development consists of very minute black dots that are buried just beneath the surface of the leaves.

Life Histories.—The life histories of the four types are similar. In the bright colored spots the so-called *summer spores* are formed. These are rather short-lived, and can infect other grain plants of the proper species, as well as certain wild grasses. On these last, or on volunteer grain the fungus may persist until the winter grains are up. Inside the tissues of these or of overwintering wild grasses the rusts can survive until the next season, growing slowly, forming spores, and causing new infection as the weather permits. Rapid spread comes again with moist spring weather.

The dark spots on the maturing plants produce the so-called *winter spores*. These are long-lived and regularly survive the winter. On germination the next spring they give rise to delicate infection spores that have the peculiarity of being able to infect, not the proper grain or grass species, but some other entirely different plant, as the barberry, on its leaves, in the case of the stem rust. On such a plant still another type of spore is produced rather early in the season, and it will carry the disease back to the grain crops. However, this more complicated cycle is not necessary for the persistence of the disease, and in most cases the overwintering is simply in infected plants as indicated in the preceding paragraph.

Wind is the important agent in disseminating the spores of these rusts.

Infection.—Weather conditions influence infection greatly. Cool, dewy nights and humid, misty days, when plant parts remain wet for twelve hours or more, furnish the best conditions for spore germination. Luxuriantly growing plants, because of their succulence, longer growth period and slow drying after showers, suffer much from rusts. Low, heavy, moist places in the field are favorable for rust infection. Some varieties, as the durum wheats of the semi-arid West and the rust-proof oats of the South are satisfactorily resistant; and careful breeding work is now in progress to develop other resistant types.

Control.—Try to secure early and uniform maturing of the crop, before the period of greatest rust development. Fall planted grain may escape when spring planted crops would be severely affected. Select early varieties, sow plump, uniform seed of good vitality in land that has been well prepared. Avoid excessive nitrogenous fertilizing that will produce rank, succulent growth. Do not sow thick enough to produce excessive shading. Sow on land of proper soil texture and drainage. Keep down as much as possible volunteer grain and such wild grasses as favor the development of any rust.

GRAIN SMUTS.

Four grain smuts are considered here: Oat smut, stinking smut of wheat, loose smut of wheat, and corn smut. All are caused by distinct fungi. No one of these fungi can attack other plants than the host indicated.



FIG. 7. Smut of Oats. The characteristic dwarfing of affected plants, and the infection of the entire stool are very apparent.

Distribution in North Carolina.—Oat smut occurs in varying amounts all over the State.

Stinking smut of wheat has been reported from about one-fourth the counties in the wheat-growing part of the State. It occurs typically in restricted areas.

Loose smut of wheat occurs generally wherever wheat is grown.

Corn smut has been reported from all sections of the State.

Symptoms.—Oat smut changes the heads into a black powdery mass before they shoot out from the sheaths. The grain and usually the chaff are destroyed. The dusty mass is scattered, leaving a bare stalk.



FIG. 8. Stinking Smut (left) and Loose Smut (right) of Wheat. Note the dark interior of the broken grains attacked by stinking smut. Two normal grains are shown below for comparison.

Stinking smut of wheat converts the inside of the grain into a dark powdery mass that has a disagreeable odor. The grains are small, swollen, brown and light; but their hulls and the chaff are not affected. The heads stand erect in the field as the crop matures, and the chaff and awns may spread unnaturally; otherwise the heads are not conspicuously abnormal.

Loose smut of wheat converts the grain and chaff entirely into a smut mass, and the spores are soon shed, leaving a bare stalk, very much as in oat smut.

Corn smut is characterized by the prominent swellings at first whitish and moist, later becoming dry, black smut masses. These occur

on the aërial roots, the leaves, the stalk, the ears and the tassel. They may reach large size, but sometimes are so small as to be readily overlooked.

Cause.—Oat smut is caused by the fungus *Ustilago avenae*; stinking smut of wheat by *Ustilago foetans*; loose smut of wheat by *Ustilago tritici*; and corn smut by *Ustilago zeae*. The fungi grow in the tissues of the plants, drawing nourishment from them, but not giving external evidence of their presence until conditions are suitable for their fruiting, when they form the striking masses of dust-like spores.



FIG. 9. Smut of Corn. Ear infection, with the grains enlarged and distorted.

Dissemination and Infection.—The dark dust-like spores disseminate all of these, but in rather different ways. Oat smut and wheat stinking smut spores lodge on the grain in the field or become mixed with it in threshing, remain alive on the surface of the seed during storage, germinate with the seed on planting, and form infection spores that enter the very young oat or wheat sprouts just after they emerge from the seed, and before they have appeared above ground. This very early period is the only one when infection by these two smuts can occur. Once inside the young sprout these fungi grow upward in the growing points and become established in many or all of the buds that produce shoots in the stool. No effect is seen until the smutted heads appear, months after the infection of the plants.

Spores of loose smut of wheat, on being scattered, may sift into the open flowers of nearby heads. The spores germinate immediately in the moisture there, and the fungus grows directly into the very young seed, and establishes itself in the tissues as the grain passes through the milk and dough stages, becoming dormant as it reaches maturity. The fungus remains alive inside the seed during storage, and resumes growth in the seedling plants. It, too, grows upward in the shoots, and is first apparent in the smutted heads.

Corn smut spores sprout on the moist surface of the ground, and form a number of infection spores that are carried by the wind, and may attack any tender above-ground part of the plant with which they come in contact. In manure, or on heavily manured ground these infection spores are formed in large numbers and for a long period. Moisture favors infection greatly by giving a chance both for the infection spores to be produced on the ground and for these to germinate and enter the tender plant parts. Sweet corn is much more susceptible than field corn varieties. Rank growth of the stalks favors infection both because of the delayed drying of the ground surface and because of the succulent tissue.

Control.—Control measures for these three classes of smuts depend on the modes of infection. In oat smut and stinking smut of wheat spores lodged on the surface of the seed are the source of danger. These two smuts can be easily prevented by external disinfection of the seed at any time before planting. Dipping in bluestone solution, one pound to four gallons of water, is effective; but it is apt to injure the germination of the seed, particularly of oats. A better disinfectant is formaldehyde. Dilute the full strength preparation of this (rated at 40 per cent, and sometimes known as formalin) at the rate of one pint to forty gallons of water. Sprinkle the seed pile, shoveling it over until every one is thoroughly wet. Cover with cloths for two hours, and then spread out so as to dry rapidly. Before treating wheat for stinking smut dip the seed in water, stir thoroughly and skim off the smut balls. Treated seed may be planted as soon as dry, or later. Store in disinfected bins. Once in three years is ordinarily often enough to use this treatment when home-grown seed is planted.

In the case of loose smut of wheat the seed infection is internal, and can not be reached by external applications. Uninfected seed must be planted to avoid the disease. Sometimes clean seed may be obtained from unaffected fields. Frequently it will have to be grown in a special seed plot away from other wheat fields. Such a plot must be watched closely at heading time so that every smutted stool may be pulled up and destroyed before the spores scatter. In this way clean seed for next year's general planting can be had, and if the seed for the plot is selected from superior plants, the strain of wheat can be improved at the same time. There is a method of hot water treatment that destroys most of the internal infection of loose smut of wheat, but the process injures germination to some extent, is very slow, and requires unusual care. The seed grain is soaked four to six hours in water at ordinary temperature, and is then dipped for ten minutes in loose bags in lots of not more than a peck in water held within a fraction of a degree of 129° Fahrenheit. This method is useful for insuring safe seed for planting a seed plot.

Corn smut is not carried either on or in the seed, and no seed treatment is effective. There is no direct means of control, but several things may reduce its prevalence. Avoid feeding smutted material to stock lest the manure become contaminated. Do not use manure too freely on land where corn smut prevails; compost it well or apply it as far ahead of the corn crop as possible. Do not plant corn too close, especially on soils that hold moisture or produce rank growth. Culti-

vate as soon after rains as possible so as to hasten the drying of the surface soil. In some cases, as with a sweet corn crop, it will pay to cut out and bury or burn the first formed smut masses when the farthest advanced are full size, but have not yet turned black and broken open. This will usually be a little before tasseling time. Destroy the smut masses in the field after harvesting, and rotate crops. The spores are probably killed in the silo, and the presence of smut in ensilage is not dangerous. The dry spores may irritate the digestive tract of stock, but seem not to have directly toxic properties.

The loose smut of barley is similar in characteristics and control to the loose smut of wheat, and the covered smut of barley and the kernel smut of sorghum are similar to the stinking smut of wheat.

TOBACCO WILT.

Distribution in North Carolina.—This disease has been known in Granville County for many years and is commonly referred to as the Granville wilt. The infected area there lies mainly between the Neuse



FIG. 10. Wilt of Tobacco. The picture shows the destructive effects of the disease, and something of the appearance of plants in advanced stages.

and Tar rivers, and has progressively increased until practically all the Granville coarse sandy loam type of soil is now infected. The disease also has been reported on tobacco as occurring scatteringly in Durham, Wake, and Vance counties, and probably in Greene County. On its other host plants, particularly tomato, it has been reported from Alexander, Bladen, Burke, Carteret, Columbus, Duplin, Durham, Franklin, Gates, Granville, Iredell, Mecklenburg, Randolph, Sampson, Vance, Warren, Wake and Yadkin counties.

Plants Affected.—Tobacco, tomato, Irish potato, pepper, egg-plant, peanut, jimson weed, black nightshade, and ground cherry are susceptible, as doubtless are a considerable number of other wild plants.

Symptoms.—Individual leaves become pale and misshapen, frequently on one side of the mid-rib, and droop. In time the whole plant may be involved. The stem may show on external view elongated streaks, dark and somewhat sunken. On cutting across the stems very dark areas are seen in inner bark, wood ring or central pith. On squeezing a cut stem a milky fluid exudes from the darkened areas, which is quite different from the normal clear watery sap. The root system shows a number of dead and blackened roots.

On tomato and Irish potato this disease may be confused with the *Fusarium* fungous wilts that attack these plants. The exuding of the milky fluid is a distinctive mark of the bacterial disease.

Cause.—It has been proven beyond question by several workers that this disease is caused by bacteria of the species *Bacterium solanacearum*. They make up the milky fluid referred to above. Some of this fluid from a diseased plant introduced by a needle puncture into young tissue of a healthy plant will produce symptoms of the disease in one to several weeks, depending on the rapidity of increase of the bacteria. The organisms may persist in the soil for a number of years, but do not increase markedly unless susceptible plants are allowed to grow. These bacteria are themselves plants, and their ability to maintain themselves in the soil is influenced by the physical structure, chemical composition, water content, aëration, temperature and doubtless other conditions of the soil, just as crop plants are influenced by such factors. When more exact knowledge is obtained about the special requirements of these bacteria it may be possible to handle or treat the soil in such a way as to hinder their development without interfering with tobacco production.

Dissemination.—These bacteria may be spread through any transfer of infected dirt, commonly by water washing the soil, by farm implements carrying it up and down the rows in cultivation, or from one field to another, by animals carrying it on their feet, and by adherence of dirt to the roots of plants of any sort transplanted from infected spots. It is possible that the blowing about of dust may convey it, but the vitality of the organism is affected very unfavorably by drying. The disease may start in the seed bed, and be carried to the field in plants already slightly infected there. Insects that feed on affected plants and afterwards on sound ones may infect the latter through the wounds by means of bacteria smeared on their mouth parts. In topping and suckering the disease may be conveyed from sick to healthy plants. All of these agencies naturally spread the infection over rather short distances, and it is a characteristic of the disease that it travels slowly. It is possible that manure, or tobacco seed, or cured leaves or dried stalks that have been affected may play a part at times in its dissemination, but direct evidence for this is lacking at the present, and the inability of the organisms to withstand prolonged drying makes the matter questionable.

Infection.—In most cases the organisms enter the plants from the soil through some of the smaller roots and work upward in the plant. This may occur in the seed bed, at transplanting, or later. Injury to the roots at transplanting and nematode attack furnish ready means of entrance. Insect injuries and the wounds made in topping and suckering

ing have been referred to. Some have held that too much nitrogen fertilizer predisposes the plants to the wilt, and that a relatively large amount of potash will have the opposite effect. There is no conclusive evidence that the fertilizers commonly used in tobacco culture greatly favor the disease; certainly they alone do not cause it. Rainy weather and low, moist situations are favorable to the progress of the disease.

Control.—Make the seed bed in uninfested spots. The common practice of using newly cleared land and burning it well is a safeguard. Make sure that drainage water from infected fields can not reach the seed bed. Such water is not safe for use in transplanting; on the seed bed it may undo the work of sterilizing by burning the bed. If there is any suspicious development in the seedling plants do not use any for setting in uninfested fields. Be very cautious about using plants grown by other people. By early transplanting much of the loss is sometimes avoided. Avoid root injury in transplanting and cultivation. Guard against any transfer of infected soil on farm implements or vehicles or the feet of stock. Clean the implements; disinfectants may sometimes be used on them to advantage, such as formaldehyde, 1 pint in 8 gallons of water, or carbolic acid, 1 pint in 5 gallons, or bluestone, 1 pound in 4 gallons. In infected fields try to control insects to the fullest extent. Remove and destroy affected plants in as far as possible; each one harbors enough bacteria to kill hundreds of others if given the chance. Do not let any contaminated refuse reach the barnyards or roads or streams. It is important to prevent surface drainage from infected fields to valuable land. Handle sound plants before affected ones in topping and suckering, and do this work in dry weather. Do not plant tobacco or other susceptible crops on infected soil for four to six years. Crops that require clean cultivation, such as corn or cotton, are probably best in the rotation. Be sure that susceptible weeds are kept from growing.

The following rotations* might be practiced with profit:

For land slightly infected: 1. Tobacco, followed by winter oats. 2. Cowpeas, followed by crimson clover. 3. Cotton, with crimson clover sowed at last working or first picking. 4. Corn, followed by winter rye. 5. Tobacco, followed by winter oats.

For land badly infected: 1. Tobacco, followed by crimson clover. 2. Corn, followed by crimson clover. 3. Cotton, followed by crimson clover. 4. Corn, followed by winter oats. 5. Cowpeas, followed by grass mixture after liming. 6. Grass,† followed by winter rye. 7. Tobacco, followed by crimson clover.

Attempts are being made to develop types of tobacco resistant to the disease, but these have not yet given desired results.

No practicable method of soil disinfection has been devised. Badly affected plants are hardly good for anything except the making of tobacco extract. The early harvesting of a crop may sometimes avoid increased loss.

*Outlined by Mr. E. G. Moss, Co-operative Assistant in Tobacco Investigations.

†It may sometimes be best to keep the land in grass two years, thus lengthening this rotation.

ROOT KNOT OF VARIOUS CROPS.

Distribution in North Carolina.—This trouble occurs in sandy types of soil in the eastern half of the State.

Field Crops Affected.—Alfafa, vetch, soy bean, clovers, cowpeas (except Iron), cotton, tobacco, potato, sweet potato, watermelon, cucumber, cantaloupe, and tomato. Many other crop plants are affected as well. A few of the common weeds that are susceptible are May-pop, wild potato, pigweed, purslane, morning glory, and wild carrot.

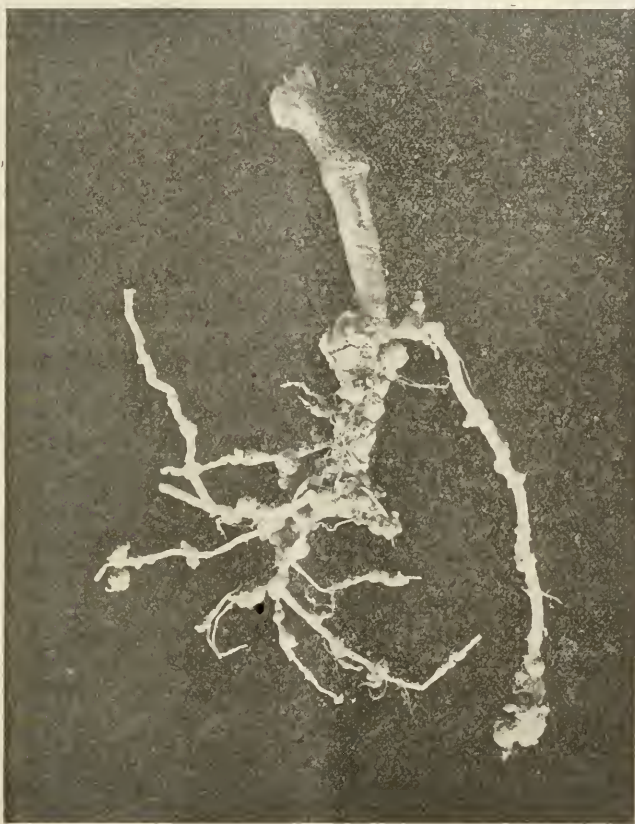


FIG. 11. Nematode Root-knot. A badly affected root-system, showing the irregular swellings of various sizes.

Symptoms.—Enlargements of irregular shape and size appear anywhere on the root system. These swellings involve the whole thickness of the root, and are not merely outgrowths from the side as are the bacterial nodules of leguminous crops. Affected plants are stunted in growth and their foliage is a lighter shade of green than normal; this, however, may be hard to detect when a large area is uniformly infected. Badly affected plants may wilt when water is scant, or sometimes in the hot sun when there is an abundance of moisture in the soil.

Cause.—This trouble is caused by a species of microscopic worm, *Heterodera radiciola*, belonging to the group of Nematodes. The females are very much enlarged during egg-laying, and may be barely seen on breaking across a knot as pearly white bodies one-half the size of a pin-head. The worms may live in the soil for months, but quickly die in galls after the death of the plant. A generation, from egg to egg, is about a month, and a female usually lays several hundred eggs. To flourish in the soil the organism requires: (1) warmth, (2) loose texture of the soil, (3) moderate moisture, and (4) proper food plants.

Dissemination.—The worms can live over winter in the more protected parts of the soil, or in the galls on perennial plants. They are readily transported to distant places in infected nursery stock, mainly fig, peach or mulberry, or in the roots or adhering soil of annual plants for transplanting, or in Irish potato tubers for seed. For shorter distances the usual agencies are running water that washes the surface soil, hoofs of animals, wheels of vehicles, farm implements, and men's shoes. Possibly winds and manure may be less successful disseminators. The worms can move through the soil, but at a rate of only a few feet a season.

Infection.—The larval worms enter the young tips of the roots, and the irritation they set up causes the gradual development of the gall as the part grows older. The list of susceptible plants includes several hundred of all sorts of plants. The field crop plants that are practically resistant are rye, winter oats, wheat, corn, peanut, Iron cowpea, and velvet bean. Crab-grass and beggarweed are also highly resistant.

Control.—Avoid transfer of infected soil. Regulate washing of soil by using embankments. Clean implements in going from an infested spot. Areas can be most quickly cleared of the infestation by keeping the land absolutely bare for two years. But many soils can not be treated thus, and the method is expensive. The next most effective one is to plant for two years in resistant crops, as winter rye or oats followed by Iron cowpeas or peanuts or velvet beans; and repeat the second year. Susceptible weeds must not be allowed to grow. If a winter grain is omitted, plow in the fall, cultivate bare the next spring until time to plant the resistant legume. Some reduction can be accomplished by breaking the land deep in dry weather and allowing it to dry out as much as possible. Allowing the land to grow up thick with crab-grass is good. Proper fertilization to make up for soil deficiencies has a good effect on the crop and may enable it to develop in spite of the nematodes.

LEAF TOBACCO SALES FOR MARCH, 1913.

Pounds sold for producers, first hand.....	1,669,630
Pounds sold for dealers	165,661
Pounds resold for warehouses.....	130,947
Total.....	1,966,238

THE BULLETIN
OF THE
NORTH CAROLINA
DEPARTMENT OF AGRICULTURE
RALEIGH

Vol. 34, No. 4.

SUPPLEMENT, APRIL, 1913.

Whole No. 183.

ANALYSES OF ILLUMINATING OILS

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BY
GARLAND JONES, Jr., State Oil Chemist

SENT FREE TO CITIZENS ON APPLICATION.
Entered at the Post-office at Raleigh, N. C., as second-class matter,
February 7, 1901, under Act of June 6, 1900.

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DIVISION OF OIL INSPECTION

W. A. GRAHAM.....	Commissioner.
ELIAS CARR	Secretary.
GARLAND JONES, JR.....	State Oil Chemist.

SIR:—I submit herewith manuscript covering analyses of illuminating oils sampled during the first three months of the current year. I recommend that it be published as a supplement to the April BULLETIN.

Respectfully submitted,

GARLAND JONES, JR.,
State Oil Chemist.

TO HON. W. A. GRAHAM,
Commissioner of Agriculture.

AN ACT TO PROVIDE FOR THE INSPECTION OF ILLUMINATING OILS AND FLUIDS.

[Chapter 554, Public Laws of 1909, as amended by Public Laws of 1911, Chapter 143.]

The General Assembly of North Carolina do enact:

SECTION 1. That all kerosene or other illuminating oils sold or offered for sale in this State for illuminating purposes shall be subject to inspection and test to determine the safety and value for illuminating purposes. All manufacturers, wholesalers and jobbers, before selling or offering for sale in this State any kerosene or other oil for illuminating purposes, shall file with the Commissioner of Agriculture a statement that they desire to do business in the State, and furnish the name or brand of the oil or oils which it is desired to sell, with the name and address of the manufacturer, and that the oil or oils will comply with the requirements of this act. The Department of Agriculture shall have power at all times and at all places to have collected samples of any illuminating oils offered for sale, and have the same analyzed. The inspection of oils, as authorized in this act, shall be under the direction of the Board of Agriculture, which is authorized to make all necessary rules and regulations for the inspection of such oils and to adopt standards as to safety, purity or absence from objectionable substances and luminosity when not in conflict with the provisions of this act and which they may deem necessary to provide the people of the State with satisfactory illuminating oil.

Oils subject to inspection and test.

Statement to be filed.

Power to collect and analyze samples.

Rules and regulations.

Standards.

SEC. 2. The Board of Agriculture shall appoint such number of oil inspectors as will be necessary, not exceeding five whose compensation shall be four dollars per day and expenses while on duty. Each inspector, before entering upon his duties, shall take an oath of office before some person authorized to administer oaths. The inspector shall have power to examine all barrels, tanks or other vessels containing kerosene or other illuminating oils, to see that they are properly tagged as required in this act, and they shall, as directed, collect and test samples of oil offered for sale in different sections of the State, and when instructed collect and send samples to the Department of Agriculture for examination.

Appointment of inspectors.

Salary.

Inspectors to qualify.

Examination of vessels containing oil.

Collection and test of samples.

SEC. 3. For the purpose of defraying expenses connected with the inspection, testing and analyzing oils in this State, there shall be paid to the Commissioner of Agriculture a charge of one-half cent per gallon, which payment shall be made before delivery to agents, dealers or consumers in this State. Each barrel, tank, tank car or other container of oil shall have attached thereto a tag or stamp stating that all charges specified in this section have been paid; and the Commissioner of Agriculture, with the advice and consent of the board, is hereby empowered to prescribe a form for such tags: *Provided*, that they shall be such as to meet the requirements of the trade in oils, and to adopt such rules and regulations as will insure the enforcement of this law. Where oil is shipped in tank cars or other larger containers, the manufacturer or jobber shall give

Tax on oils.

Vessels containing oil to be stamped.

Form of tags.

Notice of shipments.

notice to the Commissioner of Agriculture of every shipment, with the name and address of the person, company or corporation to whom it is sent, and the number of gallons, on the day the shipment is made.

SEC. 4. All moneys received under the provisions of this act shall be paid into the State Treasury and kept as a distinct fund, to be styled "the oil inspection fund." All checks or orders in payment for tags or stamps shall be made payable to the State Treasurer. The Commissioner of Agriculture is authorized to draw out of said fund, upon his warrants, such sums as may be necessary to pay all expenses incurred in connection with this act, including salary of oil chemist or chemists, cost of inspection, tags, blanks, etc.

SEC. 5 The State Treasurer shall, on the first day of June and December each year, turn into the general fund of the State all moneys of the oil fund in his hands in excess of the amount drawn out by the Commissioner of Agriculture for expenses.

SEC. 6. The Commissioner of Agriculture shall include in his report to the General Assembly an account of the operations and expenses under this act.

SEC. 7. Whenever a complaint is made to the Department of Agriculture in regard to the illuminating qualities of any oil sold in this State the commissioner shall cause a sample of said oil or oils complained of to be procured and have the same thoroughly analyzed and tested as to safety and illuminating qualities. If such analysis or other tests shall show that the oil is either unsafe or of inferior illuminating quality, its sale shall be forbidden and report of the result or results be sent to the party making the complaint and to the manufacturer of said oil.

SEC. 8. Every person who shall fraudulently brand or stamp any package or barrel or other vessel, or use a stamp a second time, or keep any kerosene or other illuminating oil not marked and branded in accordance with the regulations of the Board of Agriculture, or violate any other provision of this act or any regulation adopted by the Board of Agriculture for its enforcement, shall be guilty of a misdemeanor and fined not less than two hundred dollars (\$200) for each offense nor more than one thousand dollars (\$1,000).

SEC. 9. If any person, manufacturer or dealer shall sell or offer for sale in this State any of said illuminating oils and fluids before first having the same labeled and tagged as required by the regulations adopted by the Board of Agriculture, he shall be guilty of a misdemeanor and on conviction be fined not exceeding three hundred dollars (\$300), and the said oils and fluids be forfeited and sold, and the proceeds thereof go to the common school fund of the State. If any manufacturer or dealer of said illuminating oils or fluids shall, with intent to deceive or defraud, alter or erase the label or tag to indicate a different flash test, gravity or quantity than is indicated by the label or stamp attached to the vessel, he shall on conviction be fined not exceeding fifty dollars (\$50) for every such offense.

SEC. 10. Any inspector who, while in office, shall be interested, directly or indirectly, in the manufacture or vending of any of the illuminating oils, shall be guilty of a misdemeanor, and on conviction shall be fined not less than three hundred dollars (\$300). Inspector interested in manufacture or vending oil misdemeanor. Punishment.

SEC. 11. All prosecutions for fines and penalties under the provisions of this act shall be by indictment in a court of competent jurisdiction. Prosecutions.

SEC. 12. The provisions of this act shall not apply to the retail dealer in oils unless such retail dealer shall sell or offer to sell oils of a manufacturer, wholesaler or jobber who refuses to comply with the provisions of this act. Retail dealers.

SEC. 13. This act shall be in force from and after July first, one thousand nine hundred and nine. When act effective.

Ratified this the 8th day of March, A. D. 1909.

REGULATIONS OF THE DEPARTMENT OF AGRICULTURE CONCERN- ING ILLUMINATING OILS AND FLUIDS.

[Chapter 554, Public Laws of 1909, as amended by Public Laws of 1911, Chapter 143.]

1. The statement required of manufacturers and others desiring to sell oil in this State, in section 1 of this act, shall be in substance as follows:

COMMISSIONER OF AGRICULTURE,

Raleigh, N. C.

The..... desires to sell in North Carolina the following brands of illuminating oils:

(1) (Name)

(2) (Name)

Manufactured or sold by....., whose address is..... P. O..... And it is stipulated that said oils shall comply with the requirements of chapter 554, Laws of 1909, and the regulations of the Board of Agriculture made by authority of said act.

(Signature).....

2. There shall be placed upon each tank car before the same is emptied, and upon all other original packages, tax stamps as required in section 3 of chapter 554, Laws of 1909; also the name under which the oil is sold, the name of the manufacturer or wholesale dealer and the date of filling. No tax stamps shall be required upon a vessel filled from a container upon which the tax has been paid, but same must show the amount of oil it contains, the location of the tax-paid container from which it was filled, and the date of filling.

Where wagons are filled from stationary tanks they must have attached the location of such tanks, and all invoices for oil to retail dealers delivered from such wagons shall show the name of station from which operated and number of gallons sold.

3. Where oil is brought into this State in wagons, each wagon must have stamps attached to cover the amount of oil it contains, and with each and every sale in this State from such wagons there must be given a statement, invoice or tag, showing the name of the company operating the wagon, number of the wagon, quantity of oil sold and date of sale.

Where oil is brought into this State in wagons which also contain oil for sale in other States, a separate compartment must be provided in such wagons for oil sold or offered for sale in North Carolina, and stamps must be attached to said compartment to cover the amount of oil it contains; and with each and every sale in this State from such compartment there must be given a statement, invoice or tag, showing the name of the company operating the wagon, number of the wagon, quantity of oil sold and date of sale. Unless this separate compartment is provided, oil companies will have to pay the tax on all oil brought into this State in wagons.

4. By authority of section 2 of said act, there shall be appointed five inspectors.

5. Each inspector shall examine tank cars, barrels, drums, cans and other containers as directed by the Commissioner; see that the law and regulations are fully complied with, and collect samples as directed and send to the Department for analysis by the State Oil Chemist.

6. Each inspector shall receive four dollars per day and actual expenses while at work.

7. The Commissioner of Agriculture shall have prepared tax stamps of such denominations and in such quantities as may be deemed necessary to execute this act. The Secretary of the Board shall have charge of these stamps and deliver to the Oil Clerk from time to time such amounts as will be necessary to supply the demand, and shall make settlement quarterly of the amounts of tags disposed of.

8. A barrel shall be estimated to contain fifty-two (52) gallons and a 26-cent stamp will be received as payment of tax on contents of same, unless it shall appear that barrels in excess of fifty-two gallons are generally used by any dealer or company. In that case, tax for the total gallonage of each barrel will be required.

9. All kerosenes or other oils usually used for illuminating purposes offered for sale or sold in this State for other use shall have plainly marked on the container in letters at least two inches high, or plainly printed on a tag attached thereto, "Not for Illuminating Purposes. Highly Inflammable." Such oil is not subject to taxation. Using or selling it for illuminating purposes shall be a violation of section 8 of this act.

10. Shipment by car-load lots of oil in barrels, drums or other containers shall be reported to the Commissioner, as is required for shipment in tank cars or other large containers by section 3, chapter 554, Laws of 1909.

11. No person shall offer to a common carrier for shipment empty containers used for illuminating oils upon which the tax stamps have not been canceled.

12. The flash test of illuminating oils shall not be less than 100 degrees Fahrenheit, as tested by the Elliott method—closed cup—according to directions prepared by the State Oil Chemist. Illuminating oils which flash below 175° Fahrenheit in the Elliott closed cup shall not contain more than 6 per cent by weight of residue remaining undistilled at 570° Fahrenheit when distilled according to directions prepared by the State Oil Chemist; except that oils of not less than 47° Baumé at 60° Fahrenheit shall not contain more than 10 per cent of residue by weight.

13. The record of the tank-car book furnished by the railroad companies as to the capacity of each tank car will be accepted by the Department.

14. The State Oil Chemist shall analyze such samples as deemed necessary to ascertain safety and objectionable substances, purity and luminosity, and report to the Commissioner of Agriculture any standards he deems advisable to be established in these particulars.

15. The Commissioner, with the approval of the Police Committee, may suspend or change any of these regulations until the ensuing meeting of the Board.

W. A. GRAHAM,
Commissioner.

RALEIGH, N. C., August 1, 1913.

ANALYSES OF KEROSENE.

With proper care a kerosene lamp is a perfectly safe form of lighting and gives a light of good quality. Most accidents are not due to explosions within the lamp, but to dropping or breaking the lamp while it is lighted, or to the use of gasoline instead of kerosene in the lamp by mistake.

The poor quality of light experienced by some users of kerosene lamps may be due to several causes: To a poor quality of oil or a dirty and clogged burner, a misfitting or poor wick, or a badly fitted chimney. The inspection by the Department of Agriculture assures to the consumer in this State a good quality of oil.

In regard to the other conditions the following suggestions are offered:

SUGGESTIONS FOR THE CARE AND USE OF KEROSENE LAMPS.

The wick should be of proper size for the burner employed. It should be long enough to reach the bottom of the oil container. It should be thoroughly dried before use and immediately soaked in oil. It is better to change wicks after two months use.

The chimney should be of the proper size and care should be taken that the chimney is held tightly enough so as not to fall off when the lamp is moved.

The burner should be cleaned thoroughly once a month and all pieces of burnt wick, dead insects and dirt should be removed every day. It is very important to keep the air holes in the burner open.

Always fill the lamp by daylight and never while the lamp is burning. See that the cap is screwed in before lighting. The burnt crust of the wick should be removed each day before lighting.

Refill the lamp before all the oil in the container is consumed. It is best to keep the lamp well filled, as the oil feeds to the wick better then and there is less danger of gas being formed in the container.

In extinguishing a light never blow down the chimney, but blow across the top, or better still, place a small card or piece of tin on top of the chimney.

Care should be taken to place the lamp in a secure place and never on a rickety table or place where it may be easily upset.

NEVER POUR OIL ON A FIRE.

METHODS OF ANALYSIS.

The flash point was determined with the Elliott Closed Cup Tester. The test was applied according to the following directions:

"Remove the oil cup and fill the water-bath with cold water up to the mark on the inside. Replace the oil cup and pour in enough oil to fill it to within one-eighth of an inch of the flange joining the cup and the vapor-chamber above. Care must be taken that the oil does not flow over the flange. Remove all air bubbles with a piece of dry paper. Place the glass cover on the oil cup, and so adjust the thermometer that its bulb shall be just covered by the oil.

"If an alcohol lamp be employed for heating the water-bath, the wick should be carefully trimmed and adjusted to a small flame. A small Bunsen burner may be used in place of the lamp. The rate of heating should be about two degrees per minute, and in no case exceed three degrees.

"As a flash torch, a small gas jet one-quarter of an inch in length should be employed. When gas is not at hand employ a piece of waxed linen twine. The flame in this case, however, should be small.

"When the temperature of the oil has reached 85° F. the testings should commence. To this end insert the torch into the opening in the cover, passing it in at such an angle as to well clear the cover, and to a distance about half-way between the oil and the cover. The motion should be steady and uniform, rapid and without any pause. This should be repeated at every two degrees' rise of the thermometer until the thermometer has reached 95°, when the lamp should be removed and the testings should be made for each degree of temperature until 100° is reached. After this the lamp may be replaced if necessary and the testings continued for each two degrees.

"The appearance of a slight bluish flame shows that the flashing point has been reached.

"In every case note the temperature of the oil before introducing the torch. The flame of the torch must not come in contact with the oil.

"The water-bath should be filled with cold water for each separate test, and the oil from a previous test carefully wiped from the oil cup."

The distillation test was carried out by the continuous Engler method as modified for the official residue test:

"A weighed Engler flask, containing 100 cc. of illuminating oil, is protected by a layer of asbestos on the bulb and neck. A thermometer is inserted in the usual way so that the upper part of the mercury bulb is opposite the lower part of the side neck of the flask. The distillation is conducted in the regular manner over a Bunsen flame, the heat being regulated so as to distill the oil as evenly as possible over a period of approximately 25 minutes. The time of distillation is counted from the time the first drop leaves the condenser until the burner is finally extinguished and removed. The temperature is brought up to the actual corrected temperature of 570 degrees Fahr. a second time after cooling at least 30 degrees Fahr. The corrected temperature is obtained by applying the usual formula for correction for the exposed part of the thermometer. The total period of heating shall not exceed 45 minutes. The residue in the flask is reported in per cent by weight."

SAMPLES TESTED.

Samples taken by inspectors from original containers during the first three months of the year were saved and a composite sample of each brand made. The analyses given were made on these composite samples.

In several instances where there was a sufficient quantity of oil for the test, only the samples for January and February were used. In several instances there was only one sample of a brand taken. This was included as it was desired to secure data on as many brands as possible.

Number	Number of Samples Received	Name of Oil	Name of Oil Company	Flash—Elliott Cup	Baume Gravity at 60° F.	Distilling Below 250° C., Per Cent by Volume	Residue Undistilled at 300° C. (372° F.), Per Cent by Weight	From
1	23	Aladdin Security.....	Standard Oil Co.....	106	43.1	81.0	2.4	Norfolk.
2	126	Aladdin Security.....	Standard Oil Co.....	106	44.4	80.0	2.5	Wilmington.
3	1	Aladdin Security.....	Standard Oil Co.....	104	43.0	78.5	2.3	Baltimore.
4	70	Aladdin Security.....	Standard Oil Co.....	106	43.0	81.5	2.0	Richmond.
5	4	Aladdin Security.....	Standard Oil Co.....	110	47.0	69.5	6.4	Bristol.
6	4	Diamond White.....	Standard Oil Co.....	104	43.0	78.0	3.2	Norfolk.
7	71	Diamond White.....	Standard Oil Co.....	106	44.3	83.0	2.5	Wilmington.
8	46	Diamond White.....	Standard Oil Co.....	108	43.0	80.5	2.3	Richmond.
9	6	Diamond White.....	Standard Oil Co.....	106	47.0	67.0	8.0	Bristol.
10	2	Diamond White.....	Standard Oil Co.....	108	42.7	80.5	2.4	Baltimore.
11	3	Water White.....	Standard Oil Co.....	106	43.0	81.0	3.1	
12	4	Carnadine.....	Standard Oil Co.....	106	44.0	83.5	2.6	
13	127	Crystalite.....	The Texas Co.....	116	43.7	77.0	3.4	
14	8	Headlight "A".....	The Texas Co.....	114	46.1	85.0	1.9	
15	4	Familylite.....	The Texas Co.....	118	45.2	85.5	2.0	
16	2	Lone Star.....	The Texas Co.....	116	45.8	86.0	1.7	
17	26	Red "C".....	Red "C" Oil Mfg. Co....	112	47.8	78.5	2.2	
18	11	White "C".....	Red "C" Oil Mfg. Co....	112	47.8	75.0	3.4	
19	7	Aurora White.....	Red "C" Oil Mfg. Co....	108	44.0	79.0	3.2	
20	1	Aurora Red.....	Red "C" Oil Mfg. Co....	114	43.5	80.5	2.8	
21	15	Water White.....	Cape Fear Oil Co.....	122	43.6	75.5	5.2	
22	29	Water White.....	Indian Refining Co.....	116	42.2	78.0	4.1	
23	3	Bright Kerosene.....	National Oil Co.....	116	44.2	84.0	2.0	
24	8	White Star.....	National Oil Co.....	118	42.5	76.0	3.9	
25	3	N. C., test White.....	National Oil Co.....	116	43.5	80.0	3.6	
26	2	Superba White.....	National Oil Co.....	110	47.0	80.0	3.3	
27	1	Superba Red.....	National Oil Co.....	116	45.7	85.5	1.8	
28	8	Radium.....	Crown Oil & Wax Co. ..	114	42.3	79.0	4.1	
29	1	Soline.....	Crown Oil & Wax Co. ..	108	47.0	70.0	7.8	
30	2	Orion.....	Freedom Oil Works.....	104	46.0	76.5	4.5	
31	2	Green Seal.....	Freedom Oil Works.....	106	47.0	70.0	7.1	
32	1	"B" Burning.....	Sherwood Bros.....	110	43.0	80.5	2.6	
33	1	Electro.....	Prudential Oil Co.....	112	45.7	85.5	1.5	

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Whole No. 184.

NORTH CAROLINA DAIRY HERD RECORDS.



GOOD DAIRY HERDS AND GOOD HOMES GO HAND IN HAND

SENT FREE TO CITIZENS ON APPLICATION.

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†Assigned by the Bureau of Animal Industry, United States Department of Agriculture.

LETTER OF TRANSMITTAL.

MAJOR W. A. GRAHAM,

Commissioner of Agriculture.

SIR:—Herewith is submitted manuscript covering records of work relating to dairy herds in North Carolina, which I recommend for publication as the May Bulletin.

The Dairy Farming work was begun, in coöperation with the Bureau of Animal Industry at Washington, D. C., in 1906. Mr. W. H. Eaton, however, reports in this Bulletin only that part of the data accumulated in 1911-1912.

The work is still being carried on, and the Animal Husbandry Division is anxious to assist the dairy farmers of the State in every possible way. The Division is in position to coöperate with and assist dairymen who wish to introduce business systems of records, who wish to build dairy barns, milk houses, creameries, and silos, and all others who feel that the experience and advice of practical dairymen might help them with their dairy problems. For further information write to the Animal Husbandry Division at Raleigh, N. C., or to Mr. Alvin J. Reed, who is now in charge of the Dairy Farming phase of the live-stock work. Mr. W. H. Eaton is in charge of the Dairy Experimental work.

Respectfully,

DAN T. GRAY,
Chief in Animal Industry.

Approved for printing:

W. A. GRAHAM,
Commissioner.

SUMMARY.

1. The data reported in this Bulletin were collected from one of the highest developed dairy sections of the State. The results shown are above the average for North Carolina dairy herds.

2. Only the most progressive dairymen can be induced to keep herd records. Unprogressive dairymen do not keep records.

3. In order to know the value of a dairy herd, it is necessary to keep a milk and butter-fat record of each cow from year to year. Such a record shows marked differences in the value of animals and serves as a guide in improving and building up the herd.

4. A large number of dairymen in North Carolina are not making a profit on a part or all of their cows.

5. This condition may be remedied by use of the milk scales and Babcock test.

6. Cows numbers 2 and 5 in herd 8 show that there is a marked difference in the cost of production of both milk and butter fat between individual cows in the same herd. Cow 2 produced milk at eight and one half cents per gallon and butter-fat at eighteen cents per pound; cow 5 produced milk at a cost of twelve and seven-tenths cents per gallon and butter-fat at twenty-three and one half cents per pound.

7. Large yielding cows were the most economical producers. Those yielding over 350 pounds of butter-fat produced it at an average cost of seventeen cents a pound and returned an average profit of \$68.71. Cows yielding less than 200 pounds of butter-fat produced it at an average cost of twenty-five cents a pound and returned an average profit of \$19.85.

8. The average annual cost of food for the 107 cows remaining in the herds reported in this Bulletin throughout the year was \$53.03. The average total value of the products from the cows producing less than 200 pounds of butter-fat was \$61.96, leaving a profit of only \$8.93 or \$0.75 per month.

9. Cows with records below 200 pounds of butter-fat per year can not be profitably kept on the dairy farm unless the dairyman places an abnormally high valuation on the manure and the calf.

NORTH CAROLINA DAIRY HERD RECORDS.

By W. H. EATON.

Purpose.

The chief purpose in presenting the yearly records given in this bulletin is to furnish the farmers and dairymen of North Carolina with information concerning the performance of individual cows. Dairymen are too often inclined to look at the production of the herds as a whole. The merits of each individual animal composing the herd should receive closer attention. It is also the purpose to show the general farmer who keeps two or three cows that herd record work is important even where only a few cows are maintained. Herds 7 and 9 contained three cows each and show the necessity of eliminating the inferior animals if the dairy industry is to be placed on its most efficient basis.

Plan.

In collecting the data given herein information on the following points was sought:

1. Annual production of milk per cow.
2. Annual production of butter-fat per cow.
3. Total annual value of products.
4. Annual cost of feed per cow.
5. Annual profit per cow.

Location of Herds.

The records of the herds reported in this bulletin represent work done in one county of the Piedmont section of the State by the Dairy Farming Division of the Department of Agriculture from September 1, 1911, through October 31, 1912, inclusive.

How the Work Was Conducted.

The dairymen were furnished regularly with daily milk and feed record sheets for recording the pounds of milk yielded by each cow, and the amount and kind of feed given. On the record was recorded the value of the butter, skim milk, the total value of the products, and the cost of feeds. Immediately after each cow was milked her product was weighed and a record of the weight placed in a column below the cow's name; this was done daily. Figure 1 shows a copy of the record sheet used.

The herds were visited once each month by a representative of the Dairy Farming Division, who tested the milk of each cow for the per cent of butter fat. Samples were taken of each cow's milk at two or more consecutive milkings. These samples were put in bottles labeled with the cow's name or number, and each sample tested with a Babcock tester for the butterfat content. The records were summarized each month to show the total amount of milk produced. The butter-fat produced was estimated by multiplying the pounds of milk produced during the month by the per cent of butter-fat. The quantity of butter produced was estimated by adding to the butter-fat one-sixth of its

original weight. In the herd record work reported in this bulletin, the milk was accurately weighed after each milking. In most instances the feeds were weighed at irregular intervals, therefore the feed records are only close approximations.

Number and Character of Herds.

It is impossible, at present, to secure records from a sufficient number of herds to show results which will be representative for the whole of North Carolina. The majority of the herds reported in this publication are above the average in production as only the best dairymen could be induced to inaugurate and carry through the work. Record work during the year 1911-12 was inaugurated with seventy-one dairymen but only fourteen completed a year's record. The owners of decidedly inferior herds soon discontinued either from indifference or embarrassment. With the exception of three or four Jersey herds mentioned in this bulletin, the majority of the cows were grade Jerseys and scrubs.

Valuation of Feeds Used.

With the exception of one herd the record work embraced in this bulletin was conducted with the patrons of a local creamery in the Piedmont section, therefore, the estimated price of feeds and dairy products is fairly uniform.

The following feeds were used during the year with the average prices per ton. All of these feeds were not, however, used upon any one farm.

Corn stover	\$8.00
Mixed hay	13.00
Corn silage	3.25
Cottonseed hulls	5.80
Cottonseed	19.40
Cottonseed meal	26.25
Wheat bran	33.00
Wheat shorts	38.00
Corn chop	26.70
Sucrene	29.65
Average pasturage five months at \$1.00.....	5.00

The price of cotton seed hulls has advanced somewhat since the fall of 1911 when most of the above feed was purchased. The wheat bran and shorts were fed in limited quantities and, being purchased in relatively small amounts, the price per ton is considerably higher than it would have been had these feeds been purchased either in ton or car lots.

The value of butter and butter-fat is based upon the actual prices for which they were sold. Skim milk was valued at forty cents per hundredweight with the exception of herd 14, the valuation of the product in this case being placed at twenty-five cents per hundredweight. Purchased feeds were valued at actual cost and home-grown feeds at the current value. It will be seen from this method of estimating the profits returned by the different herds that accurate comparisons can not be made with herds in different sections of the State, because no two dairy farmers are likely to pay the same prices for their purchased feeds. A

fair comparison, however, can be made of the milk and butter-fat produced.

Profit or Loss.

In this bulletin profit or loss refers to the difference between the total value of the products and the total cost of the feed. No charge for feed, other than pasture and roughage, was made while the cows were dry. No charge was made for labor; it was considered that the value of manure and the calf would largely offset this item. However, this will not always hold true in the case of a scrub herd where a poor sire is used.

FIG. 1.—A convenient record sheet for keeping the daily milk and feed record of each cow in the herd.

THE RECORD TABLES.

Accompanying the following tables will be found a brief discussion of the individual herds as to the breeding, feeds, etc. No attempt has been made to discuss the rations used by the fourteen different dairy-men other than to give the feeds from which the rations were composed. In many cases the purchased feeds were bought in small lots, consequently the rated price per ton is higher than it would have been had the feeds been purchased in larger quantities.

In order to show complete records for the herds as a whole, the records for the cows remaining in the herds for a few months and the records of heifers coming into milk after the work was inaugurated are given. In several cases cows were sold to give room for better ones; this information is shown in the foot notes following the tables.

TABLE NO. 1

HERD NO. I

(1911-'12)

Cow	Milk Produced Annually	Average Fat	Butter Fat	Total Value of Products	Total Cost of Feed	Profit for Year
	<i>Pounds</i>	<i>Per Cent</i>	<i>Pounds</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>
1	5,635	4.6	263.70	87.63	54.08	33.55
2	6,472	5.8	376.30	137.24	60.08	77.16
3	6,513	3.7	243.90	90.19	48.30	41.89
4	4,424	5.8	257.34	93.99	43.54	50.45
5*	2,451	4.7	115.80	44.06	17.25	26.81
Average.....	5,099	4.9	251.41	90.62	44.65	45.97

*5 months record.

The cows in this herd were grade Jerseys and, as shown by the final profits, were far above the average. The herd was headed by a pure bred sire from a good producing family.

The cows had access to about ten acres of pasture for five months during the year, the early pasture was rye which had been sown the previous fall; later on in the season native grasses became available

Cream was sold during the year at 30 cents a pound on the butter-fat basis; the skimmed milk was fed to the hogs and calves and was valued at 40 cents per hundredweight.

Below are listed the feeds, together with their prices, which were used during the year:

Brewer's grain	\$30.00 per ton
Cottonseed meal	26.16 per ton
Corn silage	3.00 per ton
Corn stover	8.75 per ton
Wheat bran	32.00 per ton
Cottonseed	20.00 per ton
Mixed hay	12.30 per ton
Pasture, per head.....	.90 per month

TABLE NO. 2

HERD NO. II

(1911-'12)

Cow	Milk Produced Annually	Average Fat	Butter Fat	Total Value of Products	Total Cost of Feed	Profit for Year
	<i>Pounds</i>	<i>Per Cent</i>	<i>Pounds</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>
1	4,121	4.8	198.1	75.33	42.21	33.12
2	4,877	4.7	231.5	88.47	47.36	41.11
3*	1,541	4.7	71.6	27.33	24.00	3.33
4	5,094	5.7	290.6	106.82	48.24	58.58
5*	3,006	6.1	184.9	65.93	29.17	36.76
6*	4,090	5.3	217.8	81.19	26.51	54.86
7†	1,695	4.6	78.3	29.95	17.57	12.38
8‡	1,058	5.8	62.3	22.74	12.16	10.58
9†	2,230	4.1	93.3	38.35	22.22	16.13
10¶	1,007	4.7	47.9	18.45	8.97	9.48
Average.....	2,872	5.1	147.6	55.46	27.84	27.62

*Sold. †8 months record; ‡7 months record; ¶3 months record.

The cows in this herd were Jersey grades. Owing to the fact that only three cows, numbers 1, 2, and 4, were in the herd the entire year the total profits for the herd are comparatively low. Cows numbers 3 and 8 were sold early in the year's work; the records soon showed them to be unprofitable; the others freshened late, ranging from four to seven months after the record work was started.

The cream was sold to a local creamery at an average price of 30 cents for each pound of butter-fat. The following feeds were used during the year; the prices quoted represent the actual farm cost:

Cottonseed meal	\$26.45	per ton
Wheat bran	34.35	per ton
Sucrene	31.00	per ton
Cottonseed hulls	6.00	per ton
Corn stover	8.00	per ton
Mixed hay	13.75	per ton
Pasture, per head.....	1.00	per month

The cows had the run of 20 acres of native grass pasture consisting largely of crab grass and broom sedge.

TABLE NO. 3

HERD NO. III

(1911-'12)

Cow	Milk Produced Annually	Average Fat	Butter Fat	Total Value of Products	Total Cost of Feed	Profit for Year
	<i>Pounds</i>	<i>Per Cent</i>	<i>Pounds</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>
1*	2,820	4.9	140.1	52.73	35.82	16.91
2	5,429	5.1	280.6	107.63	78.08	29.55
3	4,153	5.1	211.8	79.65	68.80	10.85
4*	2,633	6.0	158.6	57.46	48.87	8.59
5	3,609	5.3	191.9	71.47	52.56	18.91
6	5,880	5.8	291.4	111.48	75.34	36.14
7	3,012	5.3	162.3	60.06	49.57	10.49
8	5,816	4.8	281.9	106.95	79.37	27.58
9†	5,042	5.8	292.6	106.76	63.17	43.59
10‡	3,342	5.3	178.0	66.00	42.46	23.54
11‡	3,395	5.3	170.5	64.43	36.02	28.41
Average-----	4,103	5.04	206.3	80.42	57.28	23.14

*Sold. †10 months record; ‡8 months record; §7 months record.

This herd was composed largely of grade Jerseys and grade Holstein-Friesians. One grade Holstein in this herd held the distinction during two years of being the prize winner in the two-day Production Contest at the county fair winning over some excellent cows.

With the exception of five cows this herd was low in the production of both milk and butter-fat.

In connection with five months pasturage the following feeds were used during the year:

Cottonseed meal	\$26.00 per ton
Wheat bran	31.85 per ton
Sucrene	29.30 per ton
Mixed hay	15.00 per ton
Corn silage	3.50 per ton
Pasture, per head.....	1.00 per month

TABLE NO. 4

HERD NO. IV

(1911-'12)

Cow	Milk Produced Annually	Average Fat	Butter Fat	Total Value of Products	Total Cost of Feed	Profit for Year
	<i>Pounds</i>	<i>Per Cent</i>	<i>Pounds</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>
1	4,144	4.8	202.4	76.35	43.59	32.76
2	4,501	4.2	190.8	78.97	47.54	31.43
3	3,060	4.5	138.4	52.79	32.98	19.81
4	3,117	5.0	158.3	59.24	35.71	23.53
5	3,028	4.5	137.2	52.61	38.53	14.08
6	2,042	5.6	114.6	42.07	30.44	11.53
Average-----	3,315	4.74	156.9	60.34	38.13	22.21

This herd was composed of grade Jerseys and, as the records show, was low in the production of both milk and butter-fat. However, the cows were carefully fed by their owner, hence each one made a small margin of profit. Cow number 6, however, shows a profit of less than one dollar per month, which is very low. The total value of the products from this herd for the year, not including the manure or calves, was \$362.06. The entire cost of feed for the year was \$228.79, leaving a total profit of \$133.24 or \$22.20 per cow. Cow number 6 made only one-half as great a yearly profit as the whole herd averaged.

During the summer months the cows grazed on twenty acres of ordinary pasture of native grasses.

The following feeds were used during the year:

Cottonseed meal	\$26.17 per ton
Wheat bran	32.35 per ton
Cottonseed hulls	5.65 per ton
Soiling crops	4.00 per ton
Mixed hay	11.50 per ton
Corn stover	8.00 per ton

TABLE NO. 5

HERD NO. V

(1911-'12)

Cow	Milk Produced Annually	Average Fat	Butter Fat	Total Value of Products	Total Cost of Feed	Profit for Year
	<i>Pounds</i>	<i>Per Cent</i>	<i>Pounds</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>
1*	2,005	5.0	100.7	37.82	16.54	21.28
2	4,251	5.5	236.8	87.07	44.61	42.46
3	3,960	5.8	229.7	83.81	50.82	32.99
4	3,874	5.6	217.4	79.83	47.83	32.00
5	4,852	4.7	231.3	86.55	47.16	39.39
6	4,197	6.0	252.8	91.56	51.40	40.16
7	3,379	5.4	183.1	65.25	38.37	26.88
8*	439	5.1	22.8	8.51	4.10	4.41
9	3,064	6.1	188.6	68.06	42.02	26.04
10	2,660	4.2	112.2	43.59	36.37	7.22
11*	483	7.0	35.5	12.41	11.54	0.87
12	2,917	5.7	167.2	60.91	37.47	23.44
13	3,384	5.6	196.9	72.16	40.93	31.23
14†	1,381	5.4	75.5	27.87	13.71	14.16
15*	270	5.1	14.0	5.23	4.18	1.05
16†	1,092	4.1	45.5	17.93	9.14	8.79
17†	510	5.0	25.5	9.58	5.18	4.40
18†	757	5.8	44.5	16.19	7.83	8.36
Average.....	2,416	5.5	132.2	48.57	28.29	20.28

*Sold. †Heifer.

This herd was composed of pure bred Jerseys, with the exception of one cow, a Jersey-Holstein cross. The herd was headed by an excellent sire, Ora's Sultan No. 79165 whose dam's record for butter production was 659 pounds; his grand dam's record was 654 pounds of butter in one year.

The owner of this herd has a definite purpose in view and has been keeping herd records and eliminating the low producers and boarders from the herd for several years. The herd was carefully fed and managed. One reason for the moderately low production of the herd as a whole was due to the fact that it was composed largely of heifers with their first or second calf. The herd strongly indicates that it will increase in annual production as soon as the cows have reached maturity.

In connection with five months pasturage on twenty acres of natural grasses the cows were fed the following feeds:

Cottonseed meal	\$25.35 per ton
Wheat bran	29.00 per ton
Sucrene	29.30 per ton
Mixed hay	16.50 per ton
Cottonseed	20.00 per ton
Corn stover	8.00 per ton
Soiling crops	4.00 per ton
Corn silage	3.00 per ton

TABLE NO. 6

HERD NO. VI

(1911-'12)

Cow	Milk Produced Annually	Average Fat	Butter Fat	Total Value of Products	Total Cost of Feed	Profit for Year
	<i>Pounds</i>	<i>Per Cent</i>	<i>Pounds</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>
1	4,679	4.6	219.8	84.16	50.37	33.79
2	5,423	5.2	285.2	103.19	48.98	54.31
3	5,886	4.6	270.7	99.91	51.97	47.94
4	4,083	5.2	213.8	80.24	42.19	38.05
5	5,500	5.5	291.6	108.63	46.89	61.74
6	4,370	4.5	200.2	77.66	48.73	28.93
7	5,346	5.4	290.6	107.67	50.20	57.47
8*	2,996	4.9	148.6	56.29	23.11	33.18
Average.....	4,785	5.04	240.1	89.72	45.30	44.42

*7 months record.

This herd was composed of high-grade Jerseys and was headed by a pure bred Jersey sire whose dam's record was 350 pounds of butter. This farmer had a definite idea in view—that of raising the standard of the production of his herd. The owner of this herd has appreciated for some time the value of the milk scales and record sheets on his farm, and has been giving his personal care to the selection and breeding of his herd.

In addition to five months pasturage on a good Bermuda and Lespedeza pasture, the cows were fed the following feeds at the following average prices:

Cottonseed meal	\$26.50 per ton
Wheat bran	33.75 per ton
Cottonseed	17.33 per ton
Corn silage	3.50 per ton
Mixed hay	13.30 per ton
Corn stover	8.00 per ton

TABLE NO. 7

HERD NO. VII

(1911-'12)

Cow	Milk Produced Annually	Average Fat	Butter Fat	Total Value of Products	Total Cost of Feed	Profit for Year
	<i>Pounds</i>	<i>Per Cent</i>	<i>Pounds</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>
1	2,474	6.2	155.3	55.75	30.13	25.62
2	3,673	7.4	273.3	96.40	37.92	58.48
3	3,848	7.2	278.8	98.72	37.92	60.80
Average.....	3,332	7.1	235.8	83.62	35.32	48.30

As a side line to the general farm work three cows were kept on this farm. The cows were grade Jerseys and, as their records show, were above the average in production.

Cow number 1 returned a clear profit of \$2.00 per month, while number 2 and 3 returned a net profit of practically \$5.00 per month.

In this herd we find a practical demonstration of the real worth of record work with the small herd. It actually required less than five minutes of time each day to weigh and record the milk produced on the farm and this, with a few minutes work each month, making the Babcock test and summarizing the records, embraced the entire time required for the work throughout the year. Cow number 2, with only \$8.00 more feed, gave her owner \$32.86 more profit than cow number 1; cow number 3, with an additional \$8.00 worth of feed, gave \$35.18 more profit than cow number 1.

In connection with ten acres of meadow pasture for five months the cows had the following feeds at the prices per ton given below:

Cottonseed meal	\$26.00 per ton
Cottonseed	19.85 per ton
Wheat bran	35.00 per ton
Shorts	38.00 per ton
Sucrene	31.00 per ton
Mixed hay	8.00 per ton
Corn stover	8.00 per ton

TABLE NO. 8

HERD NO. VIII

(1911-'12)

Cow	Milk Produced Annually	Average Fat	Butter Fat	Total Value of Products	Total Cost of Feed	Profit for Year
	<i>Pounds</i>	<i>Per Cent</i>	<i>Pounds</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>
1*	2,649	5.5	146.2	53.50	37.58	15.92
2	6,877	5.5	380.6	139.77	68.76	71.01
3	4,360	5.3	232.3	85.85	53.89	31.96
4	5,492	5.9	328.6	118.80	61.87	56.93
5	3,282	6.3	206.9	74.07	48.74	25.33
6*	1,389	6.4	90.1	32.00	31.23	.77
7	6,394	5.7	368.8	134.47	63.70	70.77
8	4,017	6.0	241.8	87.21	51.99	35.22
9*	853	5.5	47.2	17.39	12.16	5.23
10*	1,843	5.1	94.2	34.43	24.49	9.94
11	1,344	6.4	86.8	31.07	21.40	9.67
12	4,745	5.8	277.3	100.49	52.84	47.65
Average.....	3,604	5.8	208.4	75.75	44.05	31.70

*Sold.

At the beginning of the year's work, this herd was composed of five grade Jerseys and seven pure breds but before the year's work was completed four of the grade cows were sold. The herd was headed by an excellent dairy sire whose dam's record for one year was a little less than 700 pounds of butter. The owner of this herd has had a definite object in view for some years—that of grading up the herd and increasing the milk flow and butter-fat production. Cow number 2 in this herd has the distinction of ranking as one of the highest producers in her section.

During the months of April and May the cows were allowed to run on seven acres of rye and crimson clover; during July, August and September they were pastured on fifteen acres of native grasses.

The following are the feeds used on this farm during the year:

Cottonseed meal	\$25.50 per ton
Sucrene	29.30 per ton
Soiling crops	4.00 per ton
Corn silage	4.00 per ton
Corn stover	8.00 per ton



Cow No. 2, HERD No. 8.

This cow shows a very good dairy type; she has an excellent top line with the tendency, perhaps, towards a trifle coarseness over the withers. The depth through the body and the spring of ribs indicate good feeding capacity. The depth through the heart girth and the width of muzzle indicate a strong, vigorous constitution. When in milk she showed a good udder, attached well up behind and carried well forward. This cow holds fourth place in milk production with the cows reported in this bulletin.

Her year's record:

Pounds milk	6,877
Gallons milk	799.6
Pounds butter-fat	380.6
Average test, per cent.....	5.5
Pounds estimated butter.....	444
Total value products.....	\$139.77
Cost of feed.....	68.76
Profit	71.01
Cost of producing one pound of butter-fat.....	0.18
Cost of producing one gallon of milk.....	0.085



COW NO. 5, HERD NO. 8.

This cow shows a very poor dairy type and her record for the year is better than could be expected. Her top line is poor, showing a drooping rump. She is lacking in both depth of body and spring of ribs, hence has a limited capacity for handling feed. The shallowness through her heart girth, and the narrow, funnel-shaped muzzle indicate a lack of constitution and vigor.

Her year's record:

Pounds milk	3,282
Gallons milk	381.6
Pounds butter-fat	206.9
Average test, per cent.....	6.3
Pounds estimated butter.....	248.3
Total value of products.....	\$74.07
Cost of feed	48.74
Profit	25.33
Cost of producing one pound of butter-fat.....	0.235
Cost of producing one gallon of milk.....	0.127

A study of the records of these two cows reveals the importance of record keeping on the dairy farm. It will be noticed that both cows were kept at a profit; cow number 2 returned an average profit of \$5.91 per month while cow number 5 returned only \$2.11 for the same period of time. Cow number 2 gave an increase of 418 gallons of milk and 173.7 pounds of butter-fat over cow number 5, and she also charged her owner five and one-half cents less for producing each pound of butter-

fat, and four and two-tenths cents less for producing each gallon of milk during the year. Cream was sold from this farm at an average price of thirty cents for each pound of butter-fat. Cow number 2 charged her owner eighteen cents per pound for producing this butter-fat and made a profit of twelve cents on each pound sold. Cow number 5 charged twenty-three and one-half cents for producing an equal amount of butter-fat, leaving only a profit of six and four-tenths cents on each pound sold.

TABLE NO. 9

HERD NO. IX

(1911-'12)

Cow	Milk Produced Annually	Average Fat	Butter Fat	Total Value of Products	Total Cost of Feed	Profit for Year
	<i>Pounds</i>	<i>Per Cent</i>	<i>Pounds</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>
1	4,213	6.0	256.8	92.82	53.45	39.37
2	3,367	5.8	193.2	71.58	53.53	18.05
3	6,587	5.3	351.4	129.32	62.71	66.61
Average.....	4,733	5.7	268.8	97.91	56.56	41.34

As was the case with herd number 7, the cows on this farm were kept as a side line to the general farm work. Cream was sold to the local creamery at an average price of thirty cents for each pound of butter-fat. The skim milk was fed to the calves and hogs at a feeding value of forty cents per hundredweight.

The cows were grade Jerseys and, with the exception of number 2, were above the average in production. At the conclusion of the year's work, the owner of this herd found from a summary of his records that cow number 3 made \$9.19 more profit than the combined profits of numbers 1 and 2.

By dividing the cost of the feed for the year by the number of pounds of butter-fat produced, it will be found that cow number 1 charged 0.208 cents for producing each pound of butter-fat, number 2 charged 0.27 cents and number 3 charged 0.178. In cheapness of production as well as in the amount of butter-fat and milk, number 1 was by far the best cow in the herd.

In connection with five months of pasture the following feeds were used during the year:

Cottonseed	\$20.00 per ton
Wheat bran	34.25 per ton
Cottonseed meal	25.00 per ton
Mixed hay	10.00 per ton
Corn stover	8.00 per ton

TABLE NO. 10

HERD NO. X

(1911-'12)

Cow	Milk Produced Annually	Average Fat	Butter Fat	Total Value of Products	Total Cost of Feed	Profit for Year
	<i>Pounds</i>	<i>Per Cent</i>	<i>Pounds</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>
1	4,746	5.8	275.9	100.76	50.67	50.09
2	5,973	4.6	270.3	103.58	59.09	44.49
3	3,780	4.9	185.7	69.66	55.49	14.17
4	5,339	4.8	258.6	97.90	61.41	36.49
5	3,376	5.4	185.4	68.14	44.73	23.41
6	5,252	6.0	315.6	113.43	53.79	59.64
7	4,179	4.8	201.9	76.09	53.66	22.43
8	3,033	6.2	189.0	68.01	49.17	18.84
9*	2,953	4.4	130.8	51.84	20.28	31.56
Average-----	4,295	5.2	223.8	81.47	46.60	34.87

*5 months record.

The cows comprising this herd were all grade Jerseys and, as the records show, some were very low producers. The herd was headed by an excellent dairy sire whose dam's record at the age of 17 years was 660 pounds of butter. This owner realized some time ago that the money spent for this sire was by far one of the best investments on his farm. The offspring from this sire show constitution, dairy temperament, and excellent dairy form. It is to be expected, when these heifers come into milk, that they will excel the records of their dams.

Cream was sold to the local creamery at an average of about thirty cents for each pound of butter-fat and the skim milk was used for feeding purposes at a feeding value of forty cents per hundredweight.

In connection with five acres of Herd's Grass, and forty-five acres of broom sedge and Lespedeza pasture, the following feeds were used:

Cottonseed meal	\$28.00 per ton
Cottonseed	20.00 per ton
Wheat bran	34.55 per ton
Corn chop	26.70 per ton
Sucrene	31.00 per ton
Mixed hay	10.75 per ton
Corn stover	8.00 per ton

TABLE NO. 11

HERD NO. XI

(1911-'12)

Cow	Milk Produced Annually	Average Fat	Butter Fat	Total Value of Products	Total Cost of Feed	Profit for Year
	<i>Pounds</i>	<i>Per Cent</i>	<i>Pounds</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>
1	4,314	5.4	234.8	86.36	44.21	42.15
2*	2,690	5.1	137.8	54.39	25.15	29.24
3	6,824	4.1	284.1	111.23	56.63	54.60
4	4,884	5.7	281.0	102.85	51.69	51.16
5	4,364	5.2	227.6	84.88	44.58	40.30
6*	762	8.0	61.2	20.93	19.41	1.52
7	4,668	6.0	280.9	101.81	51.83	49.98
8	3,339	4.7	157.8	60.09	41.24	18.85
9	4,158	5.3	223.1	80.86	47.33	33.53
10	3,830	6.0	231.4	83.71	41.34	42.37
11†	1,690	4.6	78.7	30.41	20.64	9.77
12†	2,958	5.7	171.3	62.84	26.59	36.25
13†	2,794	5.1	144.2	53.96	29.37	24.59
14*	1,796	5.9	106.5	38.60	15.89	22.71
Average.....	3,505	6.8	237.1	69.49	36.85	32.64

*Sold. †Heifer.

This farm, perhaps, holds the distinction of having purchased the first Jersey cow that was brought into that section of the State. For several years the owner bred only pure Jerseys, but later on introduced some Holstein-Friesian blood. This infusion of blood was an attempt to couple the milk flow of the Holstein-Friesian with the richness of the Jersey milk. After several years of work with this object in view, the owner of the herd realized that he was not making progress and abandoned the idea.

During 1911-12 the herd was composed of three pure bred Jerseys and eleven grades. The herd was headed by an excellent pure bred Jersey sire whose dam's record in butter production for one year was only 10.5 pounds short of the 700 pound mark.

In connection with twenty acres of Bermuda and twenty acres of Lespedeza and native grass pastures for six months, the following feeds were used during the year:

Cottonseed meal	\$26.16 per ton
Cottonseed	18.00 per ton
Sucrene	28.00 per ton
Sorghum hay	5.00 per ton
Mixed hay	12.00 per ton
Corn silage	2.50 per ton
Corn stover	8.00 per ton

TABLE NO. 12

HERD NO. XII

(1911-'12)

Cow	Milk Produced Annually	Average Fat	Butter Fat	Total Value of Products	Total Cost of Feed	Profit for Year
	<i>Pounds</i>	<i>Per Cent</i>	<i>Pounds</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>
1*	411	5.9	24.3	8.73	12.91	4.18
2	4,275	4.9	212.3	79.96	42.57	37.39
3	4,228	5.1	218.0	87.46	50.09	31.37
4	5,072	6.2	317.1	113.73	50.90	62.83
5	3,585	5.4	194.4	71.51	35.94	35.57
6	4,447	6.3	283.1	102.87	44.24	58.63
7	4,923	6.0	297.8	106.13	42.83	63.30
8	4,958	5.5	274.1	100.94	44.95	55.99
Average.....	3,987	5.9	227.6	83.91	40.55	43.36

*Sold.

This herd was composed of seven grade Jerseys and one pure bred. The herd was headed by Golden Lad of Fair View, a promising young sire whose dam's record was 486 pounds of estimated butter. The owner of this herd was an enthusiastic young farmer who appreciated the fact that good dairy blood, the use of the milk scales and tester combined, with careful herd management, would place him on the right road to success in dairy farming.

Cows numbers 4, 6 and 7 showed an excellent margin of profit over the cost of their feed bill for the year. Cow number 1, after being in the herd for five months at a net loss of \$4.81, was sold. Cows like this one if kept in any herd will seriously interfere with the net profits from the good cows.

The cows had the run of 15 acres of pasture—three acres of Lespedeza and 12 acres of broom sedge and Lespedeza. Owing to the severe drouth the pasture was short and, in consequence, the cows had only about three months of grazing during the year.

The following feeds were used during the year:

Cottonseed meal	\$25.00 per ton
Cotton seed	20.00 per ton
Wheat bran	32.00 per ton
Cottonseed hulls	5.75 per ton
Mixed hay	15.00 per ton
Soiling crops	3.00 per ton

TABLE NO. 13

HERD NO. XIII

(1911-'12)

Cow	Milk Produced Annually	Average Fat	Butter Fat	Total Value of Products	Total Cost of Feed	Profit for Year
	<i>Pounds</i>	<i>Per Cent</i>	<i>Pounds</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>
1*	3,051	5.7	173.77	63.64	31.97	31.67
2	4,503	5.5	248.47	89.49	57.92	31.57
3	5,260	5.7	302.08	110.42	55.43	54.99
4	4,363	5.9	258.02	103.79	55.43	48.36
5	5,895	5.5	324.85	119.62	55.43	64.19
6*	2,057	5.3	108.88	40.45	32.99	7.46
7	4,755	4.9	232.70	87.84	60.59	27.25
8	5,142	5.2	271.13	100.76	55.30	45.46
9†	2,184	5.3	115.61	42.95	19.89	23.06
Average.....	4,135	5.4	226.17	84.33	47.22	37.11

*Sold. †Heifer, 5 months record.

This herd was composed largely of high-grade Jerseys, and as their records indicate, were animals of considerable merit. The owner of this herd had been eliminating the low producers for four years, his object being to bring the average yearly production up to at least 5,000 pounds of milk.

An excellent pure bred sire from a high producing family was at the head of this herd; none of his progeny were in milk at the time the record work was conducted, but they were a promising lot of heifers and showed more capacity than their dams.

The cows had the run of a small field of crimson clover and about twenty acres of native grasses. The ration was composed of the following concentrates and roughages:

Cottonseed meal	\$26.15 per ton
Cottonseed	18.66 per ton
Sucrene	29.72 per ton
Wheat bran	31.66 per ton
Corn silage	3.35 per ton
Soiling crops.....	4.00 per ton
Corn stover	6.00 per ton
Mixed hay	15.00 per ton



Cow No. 25, HERD No. 14.

This cow is the second highest producer in the herd. In dairy form she is an ideal to have in mind in breeding and selecting the herd. Note the good udder, prominent milk veins and capacity for handling feed. Her average annual profit for three years was \$58.74.

The average for the cows in this herd for three years was 5,106 pounds of milk, 272.8 pounds butter-fat, (making 318.7 pounds of estimated butter) with an average annual profit per cow of \$40.67. The cow shown above yielded an average of 5,642 pounds milk, 337.6 pounds of butter-fat, 393.8 pounds of estimated butter, with an average annual profit of \$58.74.

There are very few cows of this character in the State, so it impossible for every one, or even a large proportion of North Carolina farmers and dairymen, to dispose of the animals they are now milking and fill their places with the more desirable type. There is a practical method, however, of replacing the common cows with good individuals; it can be done by selection and breeding.



A COW IN HERD No. 14.

Typical Island type. An excellent top line, head, and udder. Note narrowness between horns, width between eyes, dished face, heavy muscles under jaw and width of muzzle. These points are insisted on by Island breeders. In connection with conformation, the cow is a good producer. Her record for 1912 was 5296.5 pounds of milk and 349 pounds butter.

Her year's record:

Pounds milk	5,296.5
Pounds butter-fat	299.22
Pounds estimated butter.....	349.09
Value of products.....	\$109.23
Cost of feed.....	65.51
Profit	43.72

TABLE NO. 14
HERD NO. XIV
AVERAGE RECORDS 1910-'11-'12

Cow	Milk Produced Annually	Average Fat	Butter Fat	Estimated Butter	Total Value Products	Total Cost of Feed	Profit For Year
	<i>Pounds</i>	<i>Per Cent</i>	<i>Pounds</i>	<i>Pounds</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>
1	5,243	5.2	275.9	345.2	111.79	65.32	46.46
2	5,509	5.2	290.4	338.9	106.93	63.47	43.46
3	5,438	4.8	264.6	308.8	100.84	63.94	36.89
4	3,852	5.6	218.7	255.2	82.48	50.88	31.93
5	5,168	5.2	270.0	315.0	98.59	63.62	40.78
6	5,038	6.3	324.9	379.1	117.88	63.15	54.73
7	4,938	5.1	252.2	294.1	98.18	58.61	39.57
8	4,460	6.3	284.6	332.1	107.44	63.86	43.61
9	4,868	5.4	265.5	309.7	99.13	65.85	39.94
10	5,418	5.9	269.3	314.2	102.30	66.72	35.58
11	4,691	5.9	278.4	324.8	101.60	65.98	33.61
12	5,327	5.5	293.3	342.2	112.81	63.76	49.05
13	3,414	5.6	194.5	226.9	70.87	52.47	18.40
14	4,105	5.1	210.8	245.9	76.39	53.84	22.55
15	5,318	5.5	293.9	342.8	109.96	64.30	45.66
16	5,340	5.6	299.3	349.2	112.17	70.49	41.68
17	7,523	5.2	392.4	457.8	153.22	76.62	76.60
18	5,562	5.6	314.9	367.5	116.19	66.02	50.16
19	6,024	5.2	316.0	369.5	117.55	68.23	49.23
20	5,144	5.4	280.0	326.7	101.92	68.22	33.70
21	6,445	5.0	324.0	378.0	122.25	67.13	48.45
22	5,085	5.3	271.4	316.7	101.50	59.76	41.74
23	5,089	5.4	276.2	322.2	104.07	62.00	42.01
24	5,963	5.2	312.1	368.0	117.71	67.90	49.81
25	5,642	5.9	337.6	393.8	126.43	67.63	58.74
26	3,744	5.7	213.4	249.4	79.50	54.90	24.59
27	4,708	4.7	222.0	259.3	83.61	61.46	22.15
28	3,116	5.2	162.5	189.0	61.06	48.20	12.86
Average.....	5.106	5.3	272.8	318.7	101.08	63.32	40.67

During 1911-12 this herd was composed of about 50 pure bred Jerseys in milk. Prior to 1911 seventeen of these cows had entered the Register of Merit, their average being 449.64 pounds of butter. During 1912 twelve more cows in this herd qualified for the Register of Merit. This herd has the distinction of having one of the oldest cows in the Register of Merit, she being in her seventeenth year when the test was completed.

Out of this herd were selected 28 cows having complete records for three years. Butter was sold from this farm during the three years of the record work at an average price of thirty cents per pound. Skim milk was fed to the calves and hogs at a feeding value of twenty-five cents per hundredweight.

The production of the cows in this herd for 1910, 1911 and 1912 was remarkably uniform there being a variation of only a few pounds in butter-fat production during the three years.

The owner of this herd had been a close student of dairy problems for eighteen or twenty years, and had been following a rigorous system of selection. Three sires are in service in this herd, Eminent's Flying Fox, imported, Sensational Fern 4th, and Honeymoon's Fairy Boy.

In connection with five month's pasturage on native grasses, the cows had the following feeds:

Cottonseed meal	\$28.00 per ton
Wheat bran	34.00 per ton
Sucrene	28.00 per ton
Mixed hay	15.00 per ton
Corn silage	3.00 per ton
Soiling crops	4.00 per ton

TABLE NO. 15

RECORDS OF COWS PRODUCING 350 OR MORE POUNDS OF BUTTER FAT YEARLY

Number Herd	Number Cow	Pounds Butter Fat	Value Products	Cost of Feed
XIV-'12.....	17	429.7	\$ 160.79	\$ 71.54
XIV-'12.....	18	398.0	147.80	67.85
XIV-'12.....	25	358.0	130.86	67.15
XIV-'10.....	17	375.8	149.44	79.16
XIV-'10.....	25	351.6	141.18	66.12
XIV-'11.....	2	353.4	122.36	77.11
XIV-'11.....	19	350.3	120.43	75.73
I.....	2	376.3	137.24	60.08
VIII.....	2	380.6	139.77	68.76
VIII.....	7	368.8	134.47	63.70
Average.....		374.05	138.43	69.72

Average food cost per pound of butter fat.....\$ 0.17

Average profit per cow.....68.71

TABLE NO. 17

COWS PRODUCING LESS THAN 200 POUNDS BUTTER FAT YEARLY

Number Herd	Number Cow	Butter Fat	Total Value	Cost of Feed
II.....	1	198.1	\$ 75.33	\$ 42.21
III.....	5	191.9	71.47	48.87
III.....	7	162.3	60.06	49.57
IV.....	2	190.8	78.97	47.54
IV.....	3	138.4	52.79	32.98
IV.....	4	158.3	59.24	35.71
IV.....	5	137.2	52.61	38.53
IV.....	6	114.6	42.07	30.44
V.....	1	100.7	37.82	16.54
V.....	9	188.6	68.06	42.02
V.....	10	122.2	43.59	36.37
V.....	12	167.2	60.91	37.47
V.....	13	196.9	72.16	40.93
VII.....	1	155.3	55.75	30.13
IX1.....	2	198.2	71.58	53.55
X.....	3	155.7	69.66	55.49
X.....	5	185.4	68.14	44.73
X.....	8	189.8	68.01	49.17
XII.....	8	157.8	60.09	41.24
XII.....	5	194.4	71.51	35.94
XIV-1910.....	26	155.3	59.34	47.03
XIV-1910.....	28	96.2	39.32	38.18
XIV-1912.....	13	192.4	73.57	54.99
XIV-1912.....	27	166.2	61.80	53.51
XIV-1912.....	28	184.3	68.60	49.73
Average.....		165.12	61.96	42.11

Average cost per pound of butter fat.....\$ 0.25

Average profit per cow.....19.85

LARGE PRODUCERS MOST ECONOMICAL.

The question is frequently discussed as to the influence of large and small yielding cows upon the cost of production. The point is often made that, with large yields the increase in the cost of food overbalances the profit. In order to answer the question of economical yield between cows of large and small productive capacity Tables 15 and 16 have been prepared. In the former the data for cows producing 350 or more pounds of fat are given. Out of the 144 cows reported in this bulletin there are 10 such cows. Their average yield is 374.05 pounds of butter-fat. Valuing butter-fat at thirty cents a pound and skim milk at forty cents per hundredweight, the average total value of the products per cow was \$138.43. The average annual cost of food per cow was \$69.73. The average expense to make each pound of butter-fat was \$0.17. The average annual profit per cow was \$69.71.

In Table number 16 are shown the records of the cows producing less than 200 pounds of butter-fat. There were 25 such cows remaining

in the herds throughout the year. Their average yield was 165.12 pounds of butter-fat. The average total value of products per cow was \$61.96. The average annual cost of food per cow was \$42.11. The average cost to make each pound of butter-fat was \$0.25. The average annual profit per cow was \$19.85.

According to these results the large producers yielded butter-fat at an average expense of eight cents a pound less than did the low producers. It should also be noted that the high producing cows returned an average profit of \$68.71 each, while each of the low producing animals can be credited with a yearly profit of only \$19.85. If it were not for the fact that dairy products sell for an abnormally high price in the South the great majority of our dairy cows would be kept at a large financial loss.

LEAF TOBACCO SALES FOR APRIL, 1913.

Pounds sold for producers, first hand.....	136,961
Pounds sold for dealers.....	19,736
Pounds sold for warehouses.....	<u>7,570</u>
Total.....	164,267

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THE OYSTER-SHELL SCALE

(Recommendation of Remedies on page 18.)



APPLE TREE DYING FROM OYSTER-SHELL SCALE, SURRY COUNTY, N. C.
Photo by Z. P. Metcalf.

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LETTER OF TRANSMITTAL

MAJ. W. A. GRAHAM, *Commissioner*.

SIR:—I submit herewith manuscript for a BULLETIN on "The Oyster-shell Scale." Next to the San José Scale, this is the most important scale-insect in the apple orchards of North Carolina, and the very considerable number of complaints and inquiries which we receive regarding it each year warrants the publication of a bulletin on the subject.

I recommend its publication as the June BULLETIN for 1913.

Very respectfully,

FRANKLIN SHERMAN, JR.,

Entomologist.

Approved for printing,

W. A. GRAHAM, *Commissioner*.

SUMMARY OF IMPORTANT POINTS REGARDING OYSTER-SHELL SCALE

1. The Oyster-shell Scale is complained of frequently by North Carolina fruit-growers, and its importance as a pest in the State is due to its attacks on the apple, though it may attack a wide variety of other plants (p. 5).
2. Growers who spray regularly for the San José Scale are not seriously troubled by it, because the treatments control it (p. 5).
3. The severity of damage by it varies from almost no damage to the killing of individual trees, or in exceptional cases the entire orchard may be killed (p. 8-10).
4. It is very prevalent throughout all the mountainous section of the State, and through the upper Piedmont or "foot-hill" region, and is also recorded in several scattered localities as far eastward as the counties of Mecklenburg, Stanly, Rowan, Davidson, Chatham, Wake, and Granville, and it is believed that on an average it is more severe in the more eastern localities than in the mountainous parts of the State (p. 10).
5. The winter is passed in the egg stage under the scale of the parent female—the eggs hatch most numerous in April, and a spraying to kill the young would be most effectively applied in the latter part of April or early May (p. 13).
6. Natural enemies aid to some extent in controlling it, parasites and predaceous enemies (in cases examined) having killed nearly 14 per cent during the winter (p. 15-17).
7. (a) As to remedies, first choice is given to soluble oils at rate of 1 gal. to 8 or 10 gals. water, applied in late winter before the buds open (p. 18).
(b) Second choice is kerosene emulsion at 25 per cent oil, applied in late winter before buds open (p. 18).
(c) Third choice is the lime-sulphur washes, either the commercial ready-made ones, or the home-made wash applied in late winter before buds open (p. 18).
(d) In case the winter treatment can not be given one may use kerosene emulsion at 15 per cent oil, applied in late April or early May (p. 18).
8. It is desirable that any dead or useless branches be cut out before spraying to control the Oyster-shell Scale.

THE OYSTER-SHELL SCALE

Lepidosaphes ulmi, L.

By FRANKLIN SHERMAN, JR., *Entomologist*.

Order *Hemiptera*.

Family *Coccidæ*.

Introductory. The apple-growers of North Carolina complain more often about the Oyster-shell Scale than they do of any other scale-insect attacking their trees—with the exception of the San José Scale, which still overshadows all others combined. It seldom kills the trees outright and therefore is not noticed so quickly as it deserves, and even when trees are killed by it the grower usually never knows the real cause. Hence the frequency of complaint of the Oyster-shell Scale is not fully commensurate with the damage which it does. Probably the greatest harm comes not so much from the few trees that are actually killed, but from the general weakening and greater or less stunting effect on the new growth of trees, which live on indefinitely but never attain the full measure of health and productiveness that they would if this scale were not present.

It is primarily a pest of the apple tree, though many other kinds of trees are more or less infested by it. It is not known to be present in destructive numbers east of Raleigh, so a large part of the State is seemingly (for the present at least) free from injury by it. To the westward from Raleigh it is serious in scattered localities throughout the middle section, and in the mountains it seems to be present in apple orchards everywhere, though not often actually killing the trees.

The most advanced growers, who give their trees spraying treatment every year with sulphur or oil sprays as a precaution against San José Scale and fungous diseases, appear to suffer but little from this Oyster-shell Scale, because the strengths of these sulphur and oil sprays which are used are sufficient to control this pest. But in small farm orchards where no regular spraying is done this scale has free chance to multiply, except for the natural enemies which prey upon it. For this reason some knowledge of these natural enemies of the Oyster-shell Scale is of interest and importance, and in this account some attention is given to this feature.

A Well-known Pest. The Oyster-shell Scale is one of the best-known and most widely-distributed of the scale-insects, and is mentioned in almost every list of scale-insects and in bulletins on fruit insects from all parts of the country, but it is most destructive in the northern states and the higher, cooler parts of the southern states. Much of what is known of it throughout America has been published in condensed form as Circular No. 121 of the Bureau of Entomology of the United States Department of Agriculture, at Washington, D. C., written by A. L. Quaintance and E. R. Sasser. The account of it as given in this BULLETIN is based not merely upon what others have already written (confirmed by our observations where possible), but also upon many observations and notes of our own and on the information gained from the many complaints from citizens of the State. Considerable data has also

been given by Mr. R. W. Collett, now Superintendent of the State Test Farm at Swannanoa, Buncombe County.

Description. The full-sized female scales (these are most often observed) are about one-eighth of an inch long, narrow and brown in color. They may be nearly straight, or curved—sometimes almost into

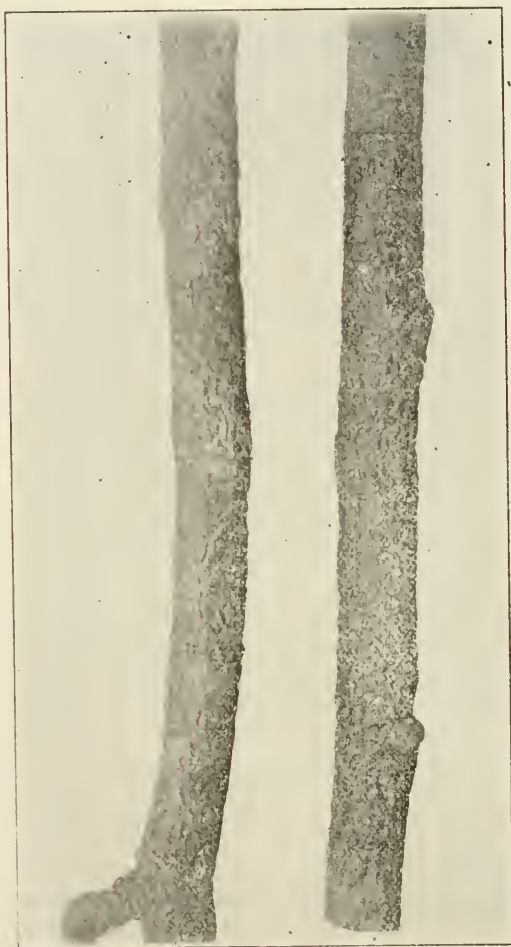


FIG. 1.—Apple twigs moderately infested with Oyster-shell Scale, shown slightly enlarged. Photo by C. L. Metcalf.

a half-circle. The front end of the scale—where the insect itself lies beneath—is narrower than the hinder end, which serves as a receptacle for the great number of over-wintering eggs. The male scale is somewhat similar, but smaller and shorter. The shape of the scales has suggested the common name of “Oyster-shell” for the species. There are of course all degrees of abundance on infested trees, from single scales

here and there, to complete incrustation where the scales are so thickly matted together that the true bark can not be seen unless the scales are scraped away. A good idea of its appearance can be had by comparing this description with the illustrations.

Among the full-sized female scales will be found numerous scales of smaller size which are males, or younger partly developed females. In spring and summer one may (at times) find countless thousands of the tiny yellowish young, crawling about in search of suitable places to locate. In winter the young will not be crawling, but the scales, of different sizes, will be found. At this (winter) season if some of the grown female scales be turned over carefully the small pearly-white eggs will be found under the hinder part of the scale, while the dead body of the female will be under the front (more pointed) end of the scale.

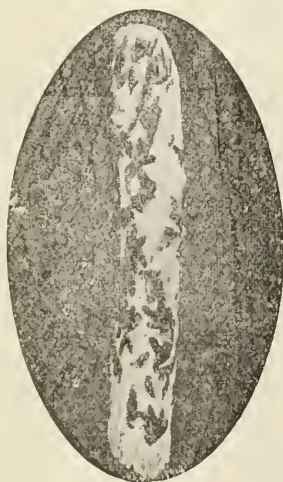


FIG. 2.—Oyster-shell Scale on apple-twig, the twig whitened to better show the shape and size of scales. Natural size. Photo by C. L. Metcalf.

History and Distribution. Messrs. Quaintance and Sasseer state that the original home of the Oyster-shell Scale is not certainly known, but that it was introduced in New England at an early date, the first American account appearing in 1794, and that it is now known to be of world-wide distribution. They state that it "occurs in every State of the Union with the possible exception of South Dakota, Oklahoma, and Texas." But its known existence in all the other States makes it practically certain that it is in those States also, even though not a matter of actual record.

This is sufficient to show us that the Oyster-shell Scale is a well established, permanent pest, and that we have no reason to believe that it will "die out," which is an often-expressed hope in regard to pests of this character. Further on in this BULLETIN we consider its distribution in North Carolina in more detail.

Plants Attacked by It. In our State the complaints of damage by the Oyster-shell Scale refer almost wholly to apple. Two complaints from Burlington (Alamance County) and one from Asheville refer to it as a pest on maples, while one complaint from Kings Mountain (Cleveland County) referred to its presence on pear.

It is known, however, to attack a great variety of plants. Quaintance and Sasseer state that it is "commonly found on apple, maple, horse-chestnut, poplar, willow and lilac," and they then give a list of over one hundred species of plants upon which it has been found, and among these we find such North Carolina kinds as: alder, aspen, apple, apricot, ash, Balm of Gilead, basswood, beech, box, box elder, buckeye (horse-chestnut), butternut, cherry, chestnut, clematis, currant, dogwood, elm, fig, ginseng, grape, holly, honeysuckle, lilac,* locust, maple, oak, peach, pear, plum, poplar, quince, raspberry, rose, sassafras, spruce, sycamore, umbrella tree, Virginia creeper, willow, walnut and yucca. They emphasize its importance as a pest of apple, maple and poplar.

This shows that the species has plenty of native plants upon which it may live—yet as before stated its chief standing as a pest with us is owing to its attacks on *apple*, though its recorded injuries to maples (at Burlington and Asheville) must not be overlooked. Mr. Collett has found it abundant on dogwood in forests far from orchard trees in Cherokee County. But we have not made a detailed record of all the plants on which we have found it in the State.

Summarizing this matter of its food-plants, so far as North Carolina is concerned, we may put it down that the Oyster-shell Scale is chiefly a pest of the apple, is also an enemy of maple, has been found abundant on dogwood, and may in future (if it is not sometimes already) be a noticeable pest on horse-chestnut, poplar, willow and lilac, where these are grown for shades or ornament. In addition it is possible for it to live on our other fruit trees, and a host of other forest and shade trees.

Damage in North Carolina. Considering the prevalence of this insect in our mountain region, the proof of really serious injury is not as abundant as might be expected. In that region it may be found in almost every apple orchard, usually in small or moderate numbers. In many individual cases, however, it becomes excessively abundant on parts of certain trees, or on the whole of certain trees, or even throughout the orchard. If a tree becomes infested while it is young, when all of the bark is tender, the body and branches may become completely encrusted and the tree may be stunted or killed. It does not breed and spread as rapidly as the San José Scale, hence the younger growth does not so quickly become infested. Hence it is not unusual to find a tree badly infested on trunk and branches of three to six years growth, while the newer growth of one to two years may have comparatively few scales. As the tree grows older there is a tendency to migrate toward the somewhat younger growth (three to six years) and the trunk and very oldest branches then show the scales mainly *under* the loose outer flakes of rough bark.

*We have at present no record of it on lilac in North Carolina, but in Maryland where the writer worked in 1897-98 it was frequently a pest on that plant.

When the tree has become badly stunted the growth of each year may be only a few inches, and we have found three-year wood, badly infested, within a foot of the end of a twig.

The tendency to become destructively abundant on certain individual trees, or on certain parts of the tree, is shown in the following quotations:

• WHITEHEAD, N. C. (Alleghany County), March, 1913.

The first I ever saw was about ten years ago,—it was out in an old field away from any other trees. It seems to affect trees worst out by themselves. I only know of one tree that has died from this scale, but others are almost hopeless,—I have one injured considerably. It is found more thickly on large limbs,—it is also found under scales of bark on the body of the tree where it would not be seen unless you look closely.

C. G. FENDER.

SWANNANOA, N. C., April 14, 1913.

I have two cases in mind (one here, and one at my home at Andrews, Cherokee County), where the trunk of large trees have been almost completely encrusted for years with no infestation of the branches.

We have one tree seriously infested in our orchard at Blantyre, but no general spread of the insect has taken place, notwithstanding the trees were planted on new land. It has been my observation that when trees are put on new cut-over land the Oyster-shell Scale will find them all in a year or two.

I once found a Swamp dogwood tree badly infested five miles at least from human habitation and in a very inaccessible place. This would lead me to suspect that the forest is quite generally infested.

R. W. COLLETT.

The last observation by Mr. Collett is very suggestive. The idea that the San José Scale is "all through the woods" is generally incorrect and misleading—but in the case of the Oyster-shell Scale it is nearer the truth, for this species has been in the country so long, and thrives readily on so many forest trees that orchards might easily and doubtless often do, receive their first infestation from trees in the surrounding forest.

Let us now consider a few cases actually observed in which injury by the Oyster-shell Scale has been severe.

The orchard of F. B. McCargo, at Mount Airy, Surry County, was visited by Mr. Z. P. Metcalf, Assistant Entomologist, in 1911, and was found to be very badly infested. The Oyster-shell Scale was abundant on many trees throughout the orchard, some trees had been killed, some fatally injured, and in other cases individual branches or twigs had been killed by it. The illustration on the front cover of this BULLETIN is from a photograph of a tree in this orchard.

At Morrisville, Wake County, the small family orchard of Mr. Malphus Sears was visited by the writer in April, 1913, and it was found that one or two trees from six to ten years of age had been completely encrusted, injured beyond hope, and had been cut down and piled as "brush" to be burned.

In 1904 Mr. R. W. Collett inspected the apple orchard on the grounds of the orphanage at Thomasville, Davidson County, and reported that the injury by the Oyster-shell Scale constituted as bad a case of de-

struction as he had ever seen by any scale-insect not even excepting the San José Scale. Referring to this in a recent letter (April 14, 1913) Mr. Collett says:

"As I recall it now the trees were about four years old, and had rather good cultivation, etc., but the scale had killed many of them and all were so badly infested that I doubt not that they all died."

While the Oyster-shell Scale is evidently much more wide-spread in our mountain region than elsewhere, yet it is the opinion of the writer that on an average it is most destructive in those scattered localities through the "central" or "piedmont" sections where it has gained a foothold. In our card-catalogue record of complaints we find that in a large proportion of cases from the central section, we have noted that the twigs sent were "badly" or "very badly infested." A possible explanation of this is given when we come to consider the natural enemies of the Oyster-shell Scale.

Distribution in North Carolina. A study of the map explains much of what we have already said, and shall here say, regarding the distribution of the Oyster-shell Scale in North Carolina. The dots only show those localities from which we have received specimens, and of course there are numerous localities where it is present, but not in our records. It will be noticed that the western one-fourth of the State (including the mountains and the "foothills" region) is thickly enough dotted to indicate that it is well-nigh universal in that region, then the dots widen out to a scattering few as we come eastward. These more scattered eastern localities are: In Mecklenburg County, Matthews; in Stanly, Big Lick; in Rowan, Mount Ulla; in Davidson, Thomasville; in Chatham, Siler City and Frosty; in Alamance, Burlington; in Wake, Morrisville; and in Granville, Oxford.

It has been already stated that this insect is known to occur in every State of the Union except possibly South Dakota, Oklahoma, and Texas. This indicates its presence in all the States to the south of us (including Florida) and from this we would expect it to be widespread throughout the whole of North Carolina. It may be that it is *present* throughout all our State, for judging by its near relative, the San José Scale, it must have been sent into numerous eastern localities on shipments of trees;—and yet our records, kept carefully for over ten years now, show no record of it east of Raleigh, so the writer is forced to conclude that throughout the eastern part of the State it can not *now* be a serious pest, even if it is present and even if it should later become serious.

And yet, curious as it may seem in the light of what has just been said, it is our suspicion amounting almost to a settled conviction, that its *average severity* is greatest in the few more scattered localities *east* of the "foothill" region. It has long been our custom to make a card-catalogue note of every complaint of insect damage. Looking back through this record for some time previous to when this is being written we find that out of fourteen cases from the western end of the State we noted that this scale was "bad" in two cases, and "slight" or "moderate" in twelve cases. But during the same period out of only five cases, from

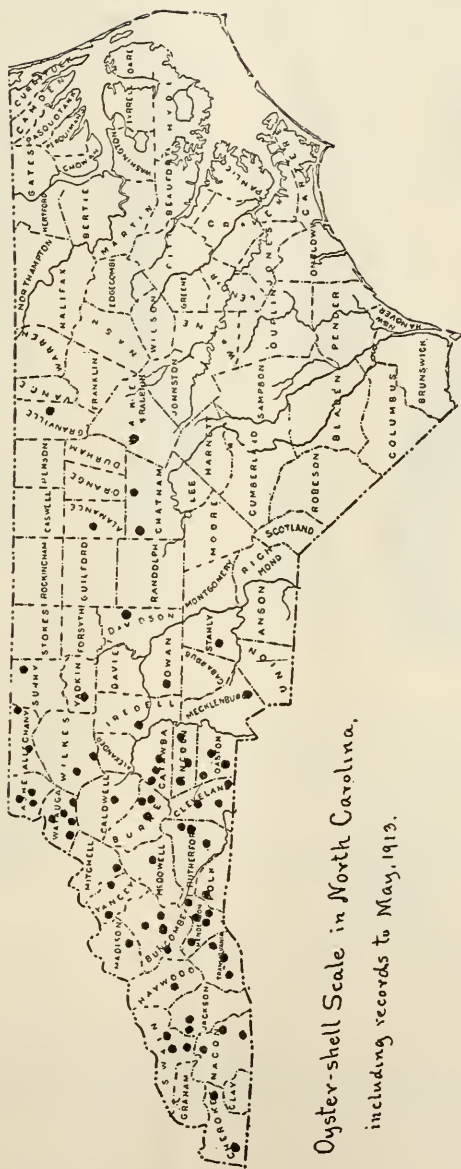


FIG. 3.

the more eastern localities it was noted as "bad" in four cases, and "slight or moderate" in one case. We find that the cases at Matthews, Big Lick and Siler City are all referred to as "bad." The case at Morrisville, inspected by the writer, was certainly "bad," and the in-

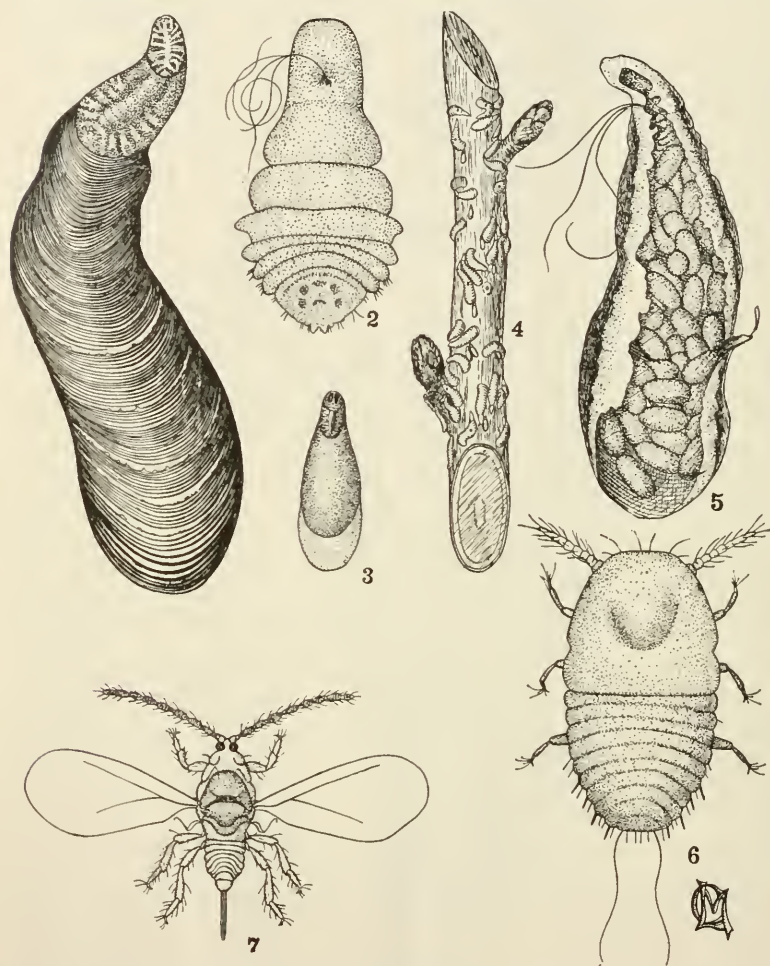


FIG. 4.—Above at left, mature female scale much enlarged. 2. Female insect removed from scale, much enlarged. 3. Mature male scale, much enlarged. 4. Infested twig, some scales with parasite holes, slightly enlarged. 5. Female scale turned over to show wintering eggs, much enlarged. 6. Young scale-insect soon after hatching, much enlarged. 7. Adult male, much enlarged (redrawn from figure by U. S. Dept. Agr.) Drawings by C. L. Metcalf.

festation at Thomasville was reported by Mr. Collett (1904) to be worse than he had ever seen by even the San José Scale.

It would be interesting to know whether this scale is actually spreading eastward. For some years all our records were from the more western part of the State, and with exception of Thomasville (1904)

all of the more eastern records are in the last few years. If it is spreading eastward and becoming fully acclimated as it goes, then the longer warm season (suitable for its breeding) would in some measure account for its seemingly greater destructiveness in the more eastern localities. But our records are not sufficiently numerous to warrant conclusions on this point, and it would be necessary to make careful inspections in many localities over a period of years to be certain of the truth on this question.

Life-history of the Insect. Beginning the consideration of its life-history with the mid-winter season;—we may say that the winter is passed by the Oyster-shell Scale in the egg stage only. During the winter just closed (1912-'13) we closely examined many twigs in all degrees of infestation but found no living scale-insects. The eggs are abundant under well-developed female scales—but the body of the female insects are dead, shriveled and dry in mid-winter. Young scales have no eggs; ones nearly full size may have eggs, but not in full numbers; but those female scales which are of full size contain great numbers of eggs. These over-wintering eggs are oblong and pearly white. They hatch in early spring to tiny yellowish "lice" which crawl actively about in search of suitable places to locate on the bark. On finding a suitable location the insect inserts its beak into the bark to suck the sap—and once this is done it is believed that it remains attached at that spot. Soon the skin is "shed," the short legs disappear, and the insect has become covered by the first beginning of the "scale," which grows, hardens, and darkens with age, but the insect remains underneath, a tiny, yellowish creature of rather indefinite shape. Quaintance and Sasscer say:

"The female molts twice in the course of her growth, and in the adult condition is entirely without legs or eyes, being nothing more than a reproductive sack with her sucking mouth-parts, through which the food is taken, inserted in the tissues of the plant. The adult male differs radically in that it is provided with antennæ (feelers) and one pair of wings. * * * During the process of metamorphosis (development) the mouth-parts of the male entirely disappear, and a second pair of rudimentary eyes assumes their place. Being without any means of taking food the adult male is naturally very short lived, its only mission appearing to be the fertilization of the female."

In North Carolina the Oyster-shell Scale presumably produces two broods each year, and quite possibly more when the season favors. Young may be found crawling in April, and dead specimens in many stages of growth are found on twigs in winter.

Time of Hatching in Spring. The exact time of hatching of the over-wintering eggs has always been emphasized as important, because while the first brood of young are crawling the trees may be sprayed to kill them—and as the young insects are very delicate the solutions would not have to be so strong as would be required to penetrate the protecting scale in winter.

Quaintance and Sasscer state that the time of hatching "will, of course, vary with the season, but in general will for any locality be shortly after the time of the falling of the blossoms."

We have been to some pains to ascertain this point for North Carolina, and can present the following data:

April 5 and 7, 1913.—Twigs from Weaverville, Buncombe County, mailed March 31 and examined on these dates showed that a few were hatching on the 5th, and many on the 7th. Nearly all scales examined showed some hatching.

April 9, 1913.—Orchard infested with Oyster-shell Scale at Morrisville, Wake County, inspected on this date; most of eggs recently hatched,—few young now crawling,—but majority are fixed with skin not yet shed or recently shed. Hatching evidently at maximum April 1st to 7th. Twigs which were sent me from this orchard on March 31st hatched abundant young on reaching the office and soon thereafter.

April 11, 1913.—Examined twigs from Asheville, Buncombe County; hatching nearly over, few eggs still unhatched.

April 16, 1913.—Examined twigs just received from Azalea, Buncombe County; few young hatched and settled; under other scales are eggs or young which have not yet left the scale.

On this same point we quote from Mr. R. W. Collett (letter written April 20, 1909):

"We have some data collected in 1906 at Blantyre (Transylvania County), which indicates April 20th as date of freest hatching, though weather was cool for a few days before. All of them had settled down by May 1st. From April 20th to May 1st would certainly have been the time of easiest control. These notes were from careful observation."

Although the localities from which these notes were made vary from Morrisville, Wake County, at altitude of about 400 feet, to Blantyre, Transylvania County, where the apple orchard is nearly 2,500 feet elevation, and though the observations are for the well-separated years of 1906 and 1913, still, *April is positively indicated* as being the chief month in which the over-wintering eggs hatch. But an event of this sort will take place more in accordance with the season than with the calendar. In forward seasons they would certainly hatch in March in the more eastern localities; and in backward seasons they might not hatch until mid-May or later in the higher, cooler mountain localities.

In the orchard examined at Morrisville, most of the eggs were hatched by April 9 (1913), but the same trees were not yet in full bloom, which is slightly at variance with the criterion given by Quaintance and Sasser.

As to the date of hatching of the second brood, we have no definite data, though in Tennessee Professor Bentley says that the time in that State is "along in July and August."

Growers whose trees are infested with this scale can easily determine the time of greatest hatching by watching for the appearance of the very small, yellowish, crawling lice, which when in great abundance give the twigs the appearance of having been lightly dusted with a yellowish powder.

NATURAL ENEMIES.

It is always of interest to know what forces Nature of her own accord summons to aid us in the control of a destructive insect, and this knowledge becomes the more important in the case of species like this, which are ordinarily overlooked by the grower, or which, while capable of great injury, do not usually appear to be of sufficient importance to call for definite treatment.

Weather. Probably the most important natural check to insect increase generally, is the vagaries of the weather—the spells of heat or cold, moisture or dryness. Just to what degree the weather controls the Oyster-shell Scale we do not know, but we do know that in North Carolina the chief month for the hatching of the spring brood of young is April, and as April is notoriously a month of heavy showers, sudden changes and frosts, we must believe that the newly-hatched young are hampered considerably by the fickleness of the weather during their early life. We believe that heavy showers at the time when the tiny young are crawling wash off hundreds of them and leave them to perish on the ground. Sudden gusts of wind must blow away many more, and though by this means a few may find lodgment on other trees (and thus spread the infection) still the majority which happen to be blown off the trees must inevitably perish. But as before stated the *extent* to which the weather conditions aid us is uncertain.

Birds, like the winds, play a double role, some species devouring the scale-insects, while the same birds (or others) serve as a means of accidentally carrying the young crawling insects to new trees. Such small tree-inhabiting birds as the chickadees, brown creepers, tufted tit, kinglets, and warblers, are known to eat the scale-insects and individual cases have been placed on record where single birds have eaten large numbers of them. Yet so far as most of our birds are concerned the Oyster-shell Scale is too small to be noticed, or is so concealed by the scale itself that it is overlooked, and we can not regard birds as an efficient means of controlling this pest.

Fungous and Bacterial Diseases no doubt contribute somewhat to the control of this scale, though to what extent we do not know. They are known to exert some influence in the case of San José Scale and the Gloomy Scale, but definite data as to their activity against the Oyster-shell Scale is not known to the writer.

Parasitic and Predaceous Insects, however, are known to play a very definite part in the control of the species, and it is possible to form some intelligent idea of their efficiency, which is certainly considerable at times. We may divide these into three classes: (1) Parasitic insects of the order Hymenoptera, (2) Lady-beetles and their larvæ, and (3) Mites.

The exact species of parasites which infest the Oyster-shell Scale in this State are not yet fully known,* but it is known that these parasites are very actively at work, and that in some cases at least, they are a

*Specimens of parasites bred from infested twigs and submitted to Washington proved to be exclusively of the species *Aphelinus mytilaspidis*. Quaintance and Sasseer mention seven species among those "more commonly found."

decided factor in holding the pest in check. During the months of March and April (1913) we requested sendings of infested twigs from a number of growers, and made careful examinations to determine the frequency of these parasites, also noting the frequency of scales which were torn open, presumably by lady-beetles, and in one case mites were found devcuring the eggs. The result was:

Twigs from	Normal— With Eggs	Para- sitized	Torn Open, by Lady- beetles ?	Mites	Total
Dr. A. J. Eller, Ready Branch, Wilkes Co....	53	11	20	-----	84
W. H. Vestal, Siler City, Chatham Co.....	83	17	-----	-----	100
G. M. Goforth, Lenoir, Caldwell Co.....	95	1	4	-----	100
E. V. Harbeck, Weaverville, Buncombe Co.	81	18	-----	1	100
Malphus Sears, Morrisville, Wake Co.....	100	-----	-----	-----	100
W. T. Wray, Asheville, Buncombe Co.	91	9	-----	-----	100

Examination was also made of twigs from several other localities the result of which could not be fairly compared with those in the table owing to abnormal conditions, so we present the notes on them separately:

1. Twigs from W. L. Garren, Wolf Creek, Cherokee County. Most of the *twigs* were already dead so that the scales would not be normal. Of the old scales a moderate per cent showed parasite holes, and others torn open as if by lady-beetles, though part of this may be due to "weather-wear" after the insects had died.

2. Twigs from Mrs. F. E. Stroud, Frosty, Chatham County. *Twigs* mostly dead or nearly so, and scales on some look dark as if treated with oil or otherwise. Few young in evidence. Counts made from twigs which looked normal; 100 scales overturned; no living parasites nor parasite-holes found, though *all* twigs were examined for this; considerable number torn open as if by lady-beetles.

3. Twigs from W. L. Gash, Azalea, Buncombe County. Scales very dark, almost abnormal in appearance. Few young have hatched and settled, but majority of scales contain only dead insects. A goodly per cent are with parasite holes.

We have already remarked upon the seemingly greater severity of this pest in the more scattered eastern localities infested by it. The studies above reported may throw some light upon this. In the cases at Morrisville, Wake County; and Frosty, Chatham County; there was absolutely no evidence of the parasites, and in the twigs from Lenoir, Caldwell County (at edge of mountains) only one parasitized scale was found out of 100 examined. However, in the twigs from Siler City, Chatham County, the percentage of parasites was fully up to normal (17%).

The lady-beetles also seem to be, if anything, less active against this scale in the more eastern localities than in the mountains. No evidence of their work was noted on the twigs from Morrisville or Siler City, though there was some evidence of them on twigs from Frosty.

Upon the whole we are led to believe that the parasite and lady-beetle enemies (especially the former) of the Oyster-shell Scale are not so universally present and active in the more eastern localities as they are in the mountains. During the inspection of the orchard at Morrisville (April 9th) the only evidence we found of natural enemies on any of the trees was a single specimen of a larva, which was presumably of the "twice-stabbed lady-beetle," which was feeding on young scales of this year's hatching. Yet that the lady-beetles sometimes occur in considerable numbers is evidenced in a note by Mr. Collett, referring to an infested tree at Andrews, Cherokee County, in which he says: "A colony of lady-beetles seem to spend their life on and around the scale-infested tree. In the summer I have seen hundreds of larvæ on this tree."

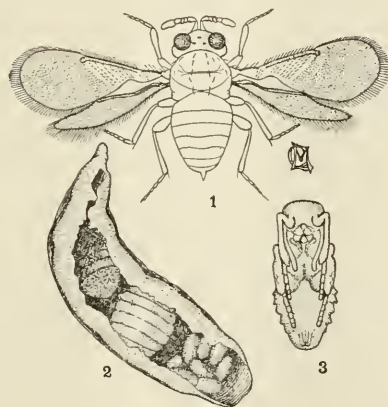


FIG. 5.—Adult parasite of Oyster-shell Scale.
2. Larva of parasite in scale with scale-insect one side and eggs on other. 3. Pupa of parasite. All much enlarged. Drawn from specimens by C. L. Metcalf.

Mites have been found among the eggs under over-wintering scales in two instances, one of which is indicated in the preceding table. In one case five individuals were under one scale, one of them having its head buried in an egg of the Oyster-shell Scale. But their number seems too small to consider them as an important aid in checking this scale.

It is to be presumed that some other predaceous insects, like the smaller ground-beetles and larvæ of the lace-wing flies, prey upon the young scale-insects to some extent.

From the table given it is seen that in a total of 584 scales examined from six different localities 81 showed attack by parasites, lady-beetles or mites. This gives nearly 14 per cent as the average killed by these natural enemies during the winter, and this is enough to be really a helpful item.

REMEDIES FOR THE OYSTER-SHELL SCALE

Our Recommendation.

1. Based on present knowledge and experience our first recommendation would be to use what are known as the "Soluble Oils" (oils so prepared that they mix easily with water) at the strength of *one gallon of the oil mixed with eight or ten gallons of water*, this to be applied as a spray during late winter before the buds of the tree begin to open. The names and addresses of several firms who manufacture these oils are given on page 21.

2. Should the grower not wish to use the soluble oils we would advise spraying the trees with kerosene emulsion at a strength of 25 per cent oil, making the application in late winter before the buds begin to open. Formula and directions for use of kerosene emulsion are given on page 22.

3. If the grower does not desire to use either the commercial oils nor the kerosene emulsion he may then depend on the usual lime sulphur washes—either the commercial ones at a rate of one gallon to eight gallons of water, or the home-made, fire-boiled wash prepared by the formula of 15 pounds lime, 15 pounds sulphur, to 50 gallons water. Names and addresses of firms who manufacture the ready-made wash are given on page 22, and directions for preparing the home-made wash are given on page 23. But our tests and observations, both with the Oyster-shell Scale and with others which are likewise protected with as hard a scale as this, indicate that the oil washes are more penetrating and more effective than the lime-sulphur preparations.

4. If the infestation is discovered too late in winter to make the treatments before the buds open, then we would advise that the trees be sprayed during the *last half of April or first half of May*, using kerosene emulsion at strength of 15 per cent oil. This is based upon the time of hatching of the eggs (already discussed) and the time recommended is such as to reach the majority of the young before the scale has become fully formed.

5. In any case, no matter what remedy is used, it is best that any dead, useless or superfluous branches be cut out, so that the spray will more thoroughly reach what remains. Do the pruning *before* making the application for Oyster-shell Scale.

TEST OF REMEDIES.

In order that the reader may understand the basis for the recommendations given we give a brief account of some tests performed.

During late winter and spring of 1912 Mr. Z. P. Metcalf, then Assistant Entomologist in this office, conducted some spraying experiments against the Oyster-shell Scale in the orchard of Mr. F. B. McCargo, near Mount Airy, Surry County. The orchard was very generally and very seriously infested. Tests were made with several ready-made preparations, as follows:

SPRAYINGS FOR OYSTER-SHELL SCALE, 1912

Material Used	Strength Mixed With Water	Dates of Spraying	Number Tree.	Result
1. Soluble Oil.....	1 gal. to 10 gals. water	March 17.....	32	Very good
2. Soluble Oil.....	a 1 to 10.....	a March 17 --- }	16	Very good
	b 1 to 30.....	b June 10..... }		
3. Soluble Oil.....	1 to 30.....	June 10.....	16	Not satisfactory
4. "Spray-On (a soluble oil material).....	1 to 10.....	March 17.....	36	Very good
5. " Spray-On".....	a 1 to 10.....	a March 17 --- }	18	Very good
	b 1 to 30.....	b June 10..... }		
6. "Spray-On".....	1 to 40.....	June 10.....	15	Not satisfactory
7. "One-for-All"*.....	2 to 5.....	March 17.....	17	Very poor
8. Lime-Sulphur.....	1 to 8.....	March 17.....	29	Fair
9. Lime-Sulphur.....	a 1 to 8.....	a March 17 --- }	16	Fair
	b 1 to 20.....	b June 10..... }		

It will be noticed that the trees used in tests Nos. 2, 5, and 9 received *two applications*, on March 17th and June 10th (the latter at diluted strength), but in each case the result was not noticeably better than when only the one stronger application was given on March 17th.

Also, in tests 3 and 6 the trees were treated on June 10th, but not in March. In these tests weaker solutions were used, and the results were "not satisfactory," from which we conclude (in view of the now-established fact that the eggs hatch mainly in April) that the June treatment was too late to give the best results against the young.

In tests 1 and 2, in both of which the soluble oil was used at 1 gallon to 10 gallons water, in March, the results were "very good," while in tests 8 and 9 in which the lime-sulphur was used at 1 gallon to 8 gallons water, in March, the results are given as "fair." This is our reason for asserting that the oils seem superior to the lime-sulphurs, presumably on account of their greater penetration.

"Spray-on," which was essentially one of the class of insecticides now generally known as "soluble oils," acted the same when being used, and gave similar results.

"One-for-all" did not do what might have been expected from its comprehensive name.

* * * * * * *

It is freely admitted that these tests do not cover *all* desirable considerations. There was no test of the usual home-made kerosene emulsion, nor of the fire-boiled lime-sulphur, nor does it show entirely satisfactory tests as against the young which hatch in April, for the June treatments were not satisfactory, and there were no treatments in late April or early May, which we would expect to be the best time to reach the young.

To offset these possible shortcomings in the tests it may be said that the general action of kerosene emulsion and of fire-boiled lime-sulphur

*"One-for-All" was a material supposed to combine the good qualities of both the oil and the sulphur sprays.

are already quite well known and we can feel fairly safe in our recommendations concerning them, even though they were not included in the tests. Owing to the time and funds available for the tests it was considered best to depend upon the materials shown, especially as the ready-made "soluble oils" and "lime-sulphurs" are rapidly coming into general use among fruit-growers.

As to the spring spraying to reach the young we are forced to believe that it is of secondary importance anyway. Late winter is already the "accepted time" to spray for the control of San José Scale on fruit trees, and it is also now evident (tests 1 and 2) that a treatment at that season with the soluble oils gives good results against the Oyster-shell Scale. We would only advise the grower to give the later treatment to kill the young in case he has for some reason been unable to give the winter treatment. In the discussion which follows it will be seen, however, that Mr. W. L. Garren, of Cherokee County, reports good results from spraying in the spring. The testimony which we now give, furnished us by actual growers, can not be regarded as technical tests, because we are uncertain as to such details as the exact strengths used, exact times of treatments, and exact results, but their testimony can be considered as fairly strong evidence.

REPORTS OF SUCCESS BY GROWERS.

On April 23, 1912, Mr. W. L. Garren, Wolf Creek, Cherokee County, sent infested twigs and asked for remedies. In our reply we recommended kerosene emulsion at strength of 15% oil. In a letter dated March 31, 1913, Mr. Garren says: "The tree that was infested one year ago has scarcely a scale on it. I used the kerosene emulsion as you directed and almost exterminated them."

Looking over some of the elder notes in our office we find the following, under date of June 19, 1901: "Mr. Ed. Underdown, manager of the Cone orchards at Blowing Rock (Watauga County), shows me apple trees which have been affected, but spraying with 25% oil emulsion, and washing with strong lye soap, has almost eradicated it." These treatments had been given in winter.

Another case of reported success is that of Mr. S. J. Luther, Candler, Buncombe County, N. C., who sent infested twigs in March, 1908, but who, when requested to send us infested twigs in 1912, replied: "I am pleased to tell you I can't send the infested apple twigs as per your request. At the time you refer to I mailed several twigs to your department and received BULLETIN treating of this Oyster-shell Scale and how to get rid of it, which I applied as directed, and with two applications killed everything clean and now have clean, healthy trees." We fail to find copy of the letter we wrote Mr. Luther in 1908, but if he applied remedies by our recommendations it was probably kerosene emulsion at 25% oil if to be used in winter, and at 15% if applied when there were blossoms or foliage on the trees.

Still another case is that of Mr. B. C. Price, of Poor's Knob, in the Brushy Mountains (Wilkes County), who made complaint in March, 1908, but who wrote in April, 1912, that he could not furnish infested

twigs, because "I have been using my spray pump and glad I can not furnish them out of my orchard."

Mr. T. N. Woodruff, of Lowgap, Alleghany County, wrote on April 6, 1912: "This scale has been a hard one for me to manage until I tried the self-boiled lime-sulphur; now I have only two small trees infested, and these were overlooked last year." As the self-boiled lime-sulphur is a spring and summer treatment we must believe that his sprayings reached either the young which hatched in April, or the young of the second brood which hatched in the summer.

There is yet another experience to relate. Mr. R. W. Collett, now Superintendent of the Buncombe Test Farm, on April 14, 1913, writes: "In 1902 or 1903 I sprayed the Stuart orchard (in Cherokee County), using standard strength whale oil soap, with the result that the following summer you and I made thorough examination and failed to find scale, though the infestation had been quite serious—some of the trees had died."

The whale oil soap here referred to is made and sold by Jas. Good, 939 N. Front street, Philadelphia, Pa. Used at the rate of $1\frac{1}{2}$ pounds dissolved in 1 gallon of hot water, and applied in winter, it was for many years one of the favorite remedies for scale insects, and it is still used to considerable extent.

FORMULAS AND DIRECTIONS FOR THE REMEDIES.

Soluble Oils (also called "Mixible Oils"). These are oils so prepared that they will mix readily with water, thereby making it possible to easily obtain any desired strength without the trouble of preparing the old-time kerosene emulsion. They furnish an excellent remedy for many scale-insects, and owing to their powers of penetration into remote crevices and through resistant scales they are preferred by many above the lime-sulphur washes. However, their effect as against fungous diseases seems to be decidedly less than the lime-sulphurs. For use against the Oyster-shell Scale we give them first choice, although when once it is under control we believe that it would be held in check (and the orchard would be more benefited in other ways) by depending on the lime-sulphur washes.

Although there are several different brands of the soluble oils on the market, yet they are quite similar in general character and action, and the same strengths of each seem to give about the same results.

Used at the rate of 1 gallon of soluble oil mixed with 10 gallons water, and applied in late winter (March, in our tests), they have given good results against the Oyster-shell Scale. If used at rate of 1 gallon to 8 gallons water the results would presumably be a little better, and apple trees are not hurt by this strength if it is applied before the buds open.

The following firms manufacture and sell these soluble oils (and there are doubtless others):

B. G. Pratt Co., 50 Church St., New York City ("Scalecide").

Thomsen Chemical Co., Baltimore, Md. ("Orchard Brand Soluble Oil").

Kerosene Emulsion. This is an old-time home-made standard remedy for scale-insects, plant-lice, etc. Once the "stock emulsion" is prepared it can be kept for a long time and diluted as needed to any desired strength. The "soluble oils" are essentially a manufactured substitute for kerosene emulsion. Kerosene emulsion is prepared as follows:

Kerosene (coal oil)	2	gallons.
Soap (laundry or soft)	$\frac{1}{2}$	pound.
Water	1	gallon.

Shave the soap into thin pieces in the water, heat to boiling, and stir to dissolve the soap. *Remove from the fire* and pour in the two gallons oil, and churn the whole mixture together vigorously for several minutes. This may be done by pumping it through the spray pump, directing the nozzle back into the mixture. When thoroughly mixed it will be of a light creamy nature and will mix readily even with cold water. This gives what is known as the "stock emulsion" and is 66 per cent oil. Now,

To get 15 per cent oil, add 10 gallons of water.
To get 25 per cent oil, add 5 gallons of water.

For use in late winter before the buds have opened, as a remedy for Oyster-shell Scale, we recommend that the kerosene emulsion be used at strength of 25 per cent oil.

For use in late spring (late April or early May) to kill the newly hatched young of the Oyster-shell Scale, we recommend that it be used at strength of 15 per cent oil.

NOTE—The chief objections to kerosene emulsion are the trouble of preparing it and the care needed in getting the exact per cent of oil. One must be careful, therefore, to follow the *proportions* here given so that the mixture when ready to be sprayed on the trees will be of the desired strength—not more and not less.

Commercial Lime-sulphur. These are solutions which contain lime and sulphur so combined that all one has to do is to mix it with the required amount of water, and it is ready to apply to the trees. There are a number of firms which sell these ready-made solutions, some of which are here listed:

Thomsen Chemical Co., Baltimore, Md.
Jas. A. Blanchard Co., New York, N. Y.
Vreeland Chemical Co., 26 Dey St., Hudson Terminal Bldg., New York, N. Y.
Niagara Sprayer Co., Middleport, N. Y.
Grasselli Chemical Co., Cleveland, Ohio.

For winter use the manufacturers usually recommend that the ready-made lime-sulphur be applied at strength of 1 gallon to 10 gallons water, but many growers and experimenters show a tendency to use it at the greater strength of 1 gallon to 8 gallons water, and apple trees will stand this strength without injury if it is applied before the buds open.

But it must be distinctly understood that at this strength (either 1 to 8, or 1 to 10) it must not be used after the buds have opened.

If the grower for any reason wishes to depend on the ready-made lime-sulphur to control Oyster-shell Scale, and can not give the above mentioned winter treatment, then we advise that he use it at rate of $1\frac{1}{2}$ gallons to 50 gallons water, and apply it in late April or early May.

Home-made Lime-sulphur Wash. This was for some time the chief remedy for scale-insects of the orchard, and is still the chief reliance of many thoroughly up-to-date growers, though it is being displaced to a great extent by the more convenient commercial washes. It is prepared as follows:

Stone Lime (unslaked)	15 pounds.
Sulphur (Flowers)	15 pounds.
Water (to make)	50 gallons.

Heat from four to six gallons water to boiling in large iron or brass kettle. Mix the sulphur with enough hot water to make a thin paste and pour it into the kettle with the hot water. Now add the lime, part at a time, and as it slakes dash in a little cold water as needed, to keep it from boiling over or to keep it from becoming dry. Keep the fire going and stir frequently. As the slaking ceases, keep it boiling from the fire for half an hour longer, then dilute with water (cold is all right) to make 50 gallons; strain through a fine wire screen or cloth to remove sediment, and spray.

This wash at the strength here given is only for use in winter before the buds open. The later the treatment is made the better, so the buds have not yet opened.

LEAF TOBACCO SALES FOR MAY, 1913.

Pounds sold for producers, first hand.....	24,471
Pounds sold for dealers.....	2,233
Total	26,704

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THE BULLETIN
OF THE
NORTH CAROLINA
DEPARTMENT OF AGRICULTURE
RALEIGH

Volume 34--No. 7.

JULY, 1913.

Whole No. 186.

LEGUMINOUS CROPS IN NORTH CAROLINA



PLOWING UNDER COW PEA VINES.

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LETTER OF TRANSMITTAL

MAJ. W. A. GRAHAM,
Commissioner of Agriculture.

SIR:—The enclosed manuscript on the subject of Leguminous Crops is in response to a demand from the farmers of the State desiring information in regard to them. I therefore recommend it for publication as the July BULLETIN.

In the preparation of this I have had access to the bulletins of the United States Department of Agriculture, from which I have gotten valuable information about many of the crops mentioned. I am also indebted to that Department for the use of many of the illustrations used in this Bulletin.

The chapter on bur clover was taken almost exclusively from the July, 1904, Bulletin of the North Carolina State Board of Agriculture, which Bulletin is now out of print.

Respectfully,
T. B. PARKER,
Director of Farmers Institutes.

Approved for publication:
W. A. GRAHAM,
Commissioner of Agriculture.

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LEGUMINOUS CROPS IN NORTH CAROLINA

BY T. B. PARKER.

The aggressive campaign that has been waged for the past few years in the interest of better farming by the use of legumes has not been without its reward. As farmers have become better acquainted with these crops and as they have more fully understood their economy in crop production, the greater has grown the demand for information about them. Nor is this surprising, for when we recognize the value of cover crops, and the advantage of legumes as cover crops, as preventers of erosions, conservers of plant food which might otherwise be leached out of the soil; and, also their power to add to the supply of plant food, deepen the soil and add to its supply of humus; to improve its physical condition, and, in addition, their value as hay and grazing crops, to the progressive farmer they become very interesting. But to properly perform the functions of a winter cover crop, those adapted to that purpose should be sowed sufficiently early to so cover the soil before their growth is stopped by cold weather as to protect it from erosion. But when they are sowed even too late for that, their root system may make enough growth to stop a large part of the waste of plant food that would be leached out of a bare soil. Then it is a well known fact that of the three essential elements in plant food, nitrogen, phosphorus, and potassium, one or more of them is deficient in most of our cultivated soils. Of these, nitrogen is the most important, and, from recent investigations, has proven to be the most elusive. Also it has been shown by experiments in Germany and also in this country (see New Jersey Bulletins, Nos. 221, 224) that only from 40% to about 65% of the nitrogen applied to crops is recovered or taken up by the crops. This makes the subject still more interesting.

Importance of Nitrogen.

We pay about five times as much per pound for nitrogen, when purchased in fertilizers, as we do for either phosphoric acid or potash. If then the crop recovers only from 40% to 65% of the nitrogen applied, that taken up by the crop becomes very expensive. To lessen this expense we need to procure our nitrogen as cheaply as possible.

Bacteria.

It is an established fact that all legumes have the power of securing free nitrogen from the air through the agency of bacteria peculiar to the particular kind of legume grown. For instance, the cowpea will thrive only when the bacteria peculiar to the cowpea is present; the soy bean requires the presence of bacteria adapted to that plant; crimson clover will thrive only when the bacteria peculiar to that plant is present; and so on throughout the entire list, with certain exceptions. Those now known are: garden or English peas, and the vetches can

become inoculated with the same bacteria. Alfalfa, sweet clover and Burr clover bacteria will inoculate either plant. There may be some others where the same bacteria will inoculate both plants, but it will be safest not to rely on that supposition. To illustrate: If you are going to sow red clover, do not depend on bacteria peculiar to crimson clover for inoculation. Neither expect a red clover soil or culture to inoculate crimson clover. Crimson clover may grow better after red clover than if red clover had not grown on the land. So it might after any of the legumes from the fact the soil contains more nitrogen and is in better

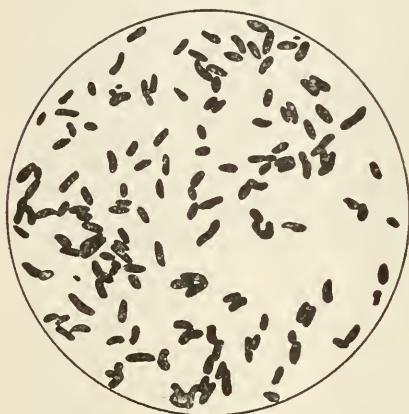


FIG. 1.—Rod forms of bacteria from a fenugreek nodule; magnified 2,000 times.

U. S. Bulletin No. 214.



FIG. 2.—Branching forms of bacteria from a clover nodule; magnified 2,000 times.

U. S. Bulletin No. 214.

condition than it would have been if the legume had not been grown on the land, and not because of the presence of bacteria in the soil. Therefore, in growing any of the legumes where they have not grown successfully before, either get soil from a field where the specific crop to be grown has been successfully grown within the last year or two or procure some of the nitrogen cultures sent out by reliable manufacturers of these.

Bacteria Cultures.

There have been within the last few years great advances and improvements made with these cultures. From Farmers' Bulletin No. 214, United States Department of Agriculture, I take the following:

"G. L. Thomas, experimenting with field peas on his farm near Auburn, Maine, made a special test with fertilized and unfertilized strips, and stated that inoculated seed did as much without fertilizers of any kind as seed not inoculated but supplied with fertilizer (phosphate) at the rate of 800 pounds and a ton of barn yard manure per acre. * * * Jeremiah Gardner, of Gaffney, S. C., wrote: 'My cow peas were better than those of others who used commercial fertilizers. They ripened early and evenly. I consider inoculation a boon to agriculture.' Mr. D. L. Farrior, of Raleigh, N. C., said that he applied commercial nitrogen culture to seed for sowing several acres in clover on his farm near this city last spring, and where he applied the

culture his stand was perfect and where he did not treat the seed with the culture, his clover was a failure. I have known alfalfa seed treated with culture and the growth was as marked as if a heavy application of stable manure had been applied to the land.



FIG. 3.—Roots of garden pea showing nodules.
U. S. Bulletin No. 214.

In applying commercial cultures always follow directions closely, else the results may be disappointing.

Inoculation with Soil.

If one has soil upon which the specific crop to be grown has been grown successfully, he can use the soil to inoculate with. A good plan is to wet the seed and roll them in soil and sow them in that condition. If one has a wheat drill with a fertilizer attachment the soil and seed can be put in that and evenly distributed on the land in that way. The soil can also be broadcast over the land, at the rate of 400 or 500 pounds per acre, the seed sown and both immediately harrowed in. This had best be done on a cloudy day or very late in the afternoon, so as to prevent the sun from drying out and killing the bacteria. But do not mix the inoculated seed with commercial fertilizer.

Our soils will be with us as long as time shall last. They will need nitrogen as long as they are cultivated or as long as crops of any kind are taken from them. The nitrate of soda beds of Chili may become exhausted long before our farmers will need no more nitrogen; the natural guano beds may become unknown; but the air, four-fifths of which is nitrogen, will be with us as long as time shall last. As nothing is lost in nature we are not robbing it to any appreciable extent when we take nitrogen from the air by the aid of the bacteria upon the roots of the legumes, because it soon escapes in gaseous form and goes back into the air and is again ready to be taken up and to be used by the grow-

ing plants, thus performing its cycle in plant and animal life. For this reason we need to study the various legumes and increase the acreage in those adapted to our soils and conditions.

In addition to adding nitrogen to the soil, being deep rooted plants, they help to deepen and to drain our soils, also to take plant food from the lower depths, where shallow-plant roots could not get it, and bring that to the surface and leave it there in the leaves, stalks, etc., of the plant where it becomes available for after crops. They also add humus to the soil, thereby adding to the water storage capacity of our soils.

Humus.

Most of our soils that have been cultivated for any length of time are deficient in humus. Perhaps it may be truthfully said that the greatest need of our upland soils today is humus. Many of our farmers fail to appreciate its great value. By humus I mean decaying vegetable matter or vegetable mould. It plays a very important part in crop production. It supplies plant food and is also a storehouse or reservoir for moisture to dissolve plant food. (See Fig. 4.) This is very important. Without moisture no land is productive. The most fertile field can produce nothing without moisture to dissolve the plant food which it

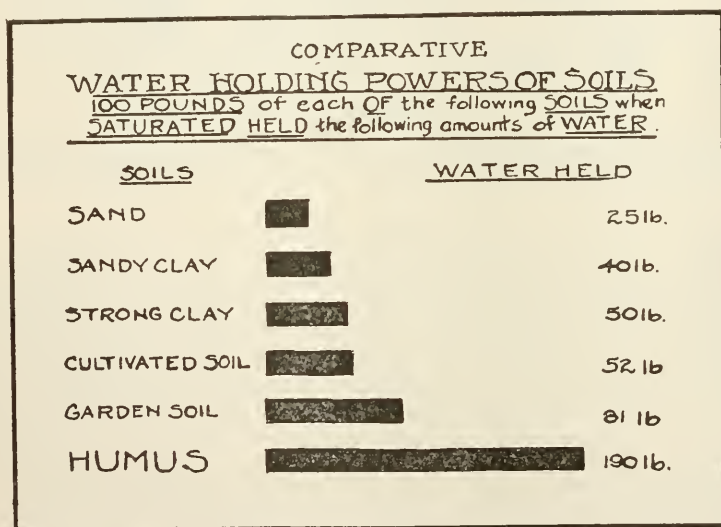


FIG. 4

contains. Humus also adds to the availability of the inert plant food in the soil. Decaying vegetable matter produces acids that act on the locked-up potash and other forms of plant food in the soil and makes them available to the growing plant. All soils, even pure sand and clay, contain some plant food, but it may be unavailable to the plant. Humus aids in unlocking this plant food and makes it available.

Lime.

Most legumes fail to grow in acid soils. They require a neutral soil or one free from acidity. There are some exceptions to this general statement which will be noted under the several heads which follow.

It is often the case that an application of lime even on our sandy soils makes it possible to grow certain of the legumes that can not be made to grow without liming the soil.

In applying lime regard should be had for the kind of lime to be applied. Caustic or freshly burned lime is very active in attacking humus in the soil and is quick in its action regarding acidity, while unburned lime is less active and larger applications can be made. In caustic or freshly burned lime it is safe to apply from 1,000 pounds to one ton according to the acidity of the soil per acre. This should be slaked with water to the point of being in a fine powder, but not wet and sticky.

This may be applied by putting the lump lime out in small piles, a peck or half bushel in a pile, and allowing it to slake before scattering it, or it may first be slaked and applied with a lime distributor, a manure spreader, or direct from a wagon. If the latter, the team should be driven against the wind so that the lime would be carried away from the men and from the team. The lime can be shoveled from the wagon and scattered over the land. If a lime distributor or a manure spreader should be used, they should be regulated so as to apply the quantity wanted per acre.

Fifty-six pounds of well burned unslaked lime is equivalent in lime value to 100 pounds of unburned or carbonate of lime. It is equivalent to 74 pounds of properly made hydrated lime. It is also equivalent to 100 pounds of lime that has been exposed to the air for quite a while.

Hay.

Most of the legumes when cut at the proper time and well cured make a very fine quality of hay. Where the hay can be used to advantage on the farm, it is much better to make the crop into hay and feed it to live stock; but if the land needs it more than the live stock does, then it may pay better to turn it under for soil improvement. Each farmer may decide this for himself. However, it may be well to remember that feeding hay to live stock does not add anything to its fertilizing value. Therefore the manure from a given quantity of hay fed to live stock and the manure returned to the land will not contain as much plant food as the grass would have furnished if it had been plowed under instead of having been made into hay and fed to the live stock.

Drainage.

Drainage is essential for good growth and development of the legume families. The bacteria necessary for the growth of the legumes can not live and perform their work in wet or poorly drained soils, except possibly in the case of cow peas and soy beans, and they do much better in well drained soils than they do in poorly drained soils. Lime and fertilizers seem to be of little avail in wet soils. It will be time and

money thrown away to plant such soils in legumes, especially in the clovers, vetches, alfalfa, etc.

In addition to drainage, the land should be well supplied with humus, phosphoric acid, and potash. With these and a soil free from acidity, and inoculation with the bacteria peculiar to the legume to be planted, one can feel assured his efforts in growing these crops will be successful.

Red Clover.

The common Red Clover (*Trifolium Pratense*) has been grown in the Piedmont sections of North Carolina for a great many years. No man knows when it was first introduced into the State. It may have come to us from Europe with the early settlers. It has probably spread from Europe and Asia to all parts of the world where it is possible to grow it. Its worth as a forage plant and as a soil improver has been known for ages. Fig. 6 gives a good idea of a thrifty young plant. Red Clover is considered a perennial, though it often does not last over two years before it has to be reseeded. Usually if the second crop is plowed under it will reseed itself, though there have been instances when the second crop did not contain the necessary seed and seed had to be sowed to keep up the crop. Where it grows successfully it is considered the principal legume crop both for hay and for soil improvement. It wants a deep, fertile, well drained soil and free from acidity. It does not do well on poorly drained land.

Red Clover Seed.

Good seed, free from dodder and other objectionable seeds are necessary for a good stand of clover. The seed should be plump and of a bright color, indicating seed of strong vitality. If clover is grown in the neighborhood in sufficient quantity to save seed, it will be better to get seed from that source than from some unknown source. You can inspect the home grown crop and see if it is free from dodder, but you can know nothing about the conditions surrounding seed bought from a distance. But in buying seed always buy the best obtainable and guaranteed to comply with the seed law of the State. When received draw a sample and mail them to the State Department of Agriculture for examination. If they show objectionable seed in any appreciable quantity, return them to the party from whom you purchased them. It is the height of folly to buy cheap worthless clover seed. Cheap seed frequently contain a very large per cent of objectionable seeds, such as Wild Mustard, Dodder, Buckhorn, Plantain, Ragweed, Wild Chicory, Wild Carrot, Lambsquarter, Dock, and other objectionable seeds.

Time of Sowing Clover.

Red Clover is usually sown in the early spring on wheat, at the rate of 12 pounds per acre and sometimes harrowed in with a tooth or peg harrow. This harrowing is usually helpful to the wheat and also covers the clover seed. The best clover growers of the locality will know the proper time for putting in the seed. It can also be sowed in the fall, say in September, or early enough to get sufficient growth

to prevent winter killing. By sowing in the fall, and especially if sown alone, a crop can be cut the next summer, whereas if sown in the spring it will be the following year before it can be cut for hay.



FIG. 5.—Stems of red clover in different stages of bloom.
U. S. Bulletin No. 455.

Fertilizer for Clover.

If the land is not fertile it will be well to make an application of Bone and Potash, analyzing about 12-5 at the rate of 300 to 500 pounds per acre. This should be applied at the time of sowing the clover seed, but never mix the seed with the fertilizer and sow them in that way,

and more especially if the seed have been inoculated with culture. The least bit of fertilizer may kill the bacteria upon the seed. In fact, I doubt the advisability of mixing clover seed with fertilizers even if



FIG. 6.—Young red clover plant showing tubercles on roots.

U. S. Bulletin No. 455.

they have not been treated with the nitrogen culture. The strong fertilizer coming in contract with the very tender clover roots or the germ may so affect the plant that it will be destroyed or if it shall come up at all it may be a weakling that will never amount to anything.

If it is not known that the land will grow clover well, it may be well

to give it an application of lime or ashes before sowing the seed. The lime or ashes should be harrowed into the soil well before sowing the seed. A top dressing of stable manure during the winter will be very helpful to the clover. This should be applied very evenly and without clods or lumps to smother the clover plants. A manure spreader is very desirable for this purpose. For the effects of such top dressing see Fig. 7.



FIG. 7.—Red clover field, showing the effect of top-dressing with manure. The area in the immediate foreground received no manure; the area immediately behind received a light application, resulting in a very vigorous stand of clover.

U. S. Bulletin No. 455.

Sowing Seed.

Whenever possible the seed should be sowed when there is sufficient moisture in the soil to cause germination. The seed may be covered from one to one and a half inches. If dry weather is anticipated, it will be advisable to give them the deeper covering.

If Red Clover has not grown on the land for several years, it will be well to inoculate the seed as advised under the head "Inoculation." Absence of bacteria in the soil has been the cause of many failures in growing clover.

Where clover is sown with wheat in the spring, it will be well to run a mower over it if weeds become troublesome after the wheat has been cut; but the cutter bar of the mower should be raised so as to cut the weeds and not materially interfere with the clover. A slight clipping of the tops of the clover will do no injury, but to cut it low might destroy the stand.

Clover Hay.

The usual time of cutting red clover for hay is just after it is past full bloom, or the heads just beginning to turn brown. When cut before it is in full bloom it is quite sappy and harder to cure, though the

hay may be of better quality for milk cattle than that which is cut later.

In saving clover hay due regard should be had for saving all the leaves. The leaves are the richest part of the plant and every effort possible should be made to save them.

Begin cutting after the dew is off and cut until two o'clock p.m. Then begin to rake into windrows and finish before the cut clover begins to get damp from the dew in the afternoon. The next day, after dew is off, put into cocks and let it remain there for a day or two until dry enough to put in a stack or in the barn.

It should dry in the shade as much as possible.

When red clover is sown for purely hay purposes, it is well to sow it with a mixture of grasses, such as will be ready to cut at the same time the clover should be cut. For this purpose Orchard Grass, Red Top, or Herds Grass, Tall meadow oat grass and Alsike clover. Timothy comes into bloom too late for red clover and should be avoided as a mixture for that plant.

Mammoth Clover.

Mammoth Clover is also known as Sapling Clover and Peavine Clover. It seems to be a large variety of the common red clover and the treatment in all respects is the same as for red clover, except that it ripens later and Timothy fits in with it for hay. Mammoth clover on account of its lateness does not have as large second crop as red clover has. Therefore the second, or aftermath as some call it, does not usually mature seed in Mammoth clover. Consequently it has to be reseeded unless the first crop is allowed to stand and make seed.

On thin land Mammoth clover seems to do better than the common red clover, but on rich lands it often grows too coarse to make the best quality hay.

Dodder in Clover.

One of the greatest enemies to clover is dodder or love vine as it is often locally known. It is a pest that should be strictly avoided. If in testing the clover seed dodder is found, refuse to sow them. But if after every care is taken some shall appear, eradicate it at once by cutting the stalks of clover close to the ground and take out every piece that has dodder on it and burn it. If the field is badly infested, plow it under and plant the field to some crop requiring cultivation for two or three years so as to get rid of the dodder.

White Clover.

White clover is well known by our farmers, therefore no minute description is necessary for that plant in this BULLETIN.

It makes a fine pasture and is also a good honey plant. It can well go into a mixture for a permanent pasture.

Alsike Clover.

Alsike clover, as it becomes better known, gains in popularity. By some it is supposed to be a cross between red clover and white clover, but best authorities seem to regard it as a distinct clover, (*Trifolium*



FIG. 8.—Field dodder on stems of red clover. At the right the dodder is shown in flower; at the left, in the mature or seed-producing stage.

U. S. Bulletin No. 455.



FIG. 9.—A single plant of crimson clover.
U. S. Bulletin No. 550.

hybridum). Be that as it may, it requires about the same treatment as red clover. It makes good hay, good pasturage and is a good honey plant, especially for Italian bees. It will thrive on land too wet for red clover.

Crimson Clover.

With the possible exception of Japan clover, there is no clover that will succeed on a wider territory in North Carolina than crimson clover will. It is also known as Annual Clover, German Clover, Scarlet Clover, and possibly some other names. Interest is increasing in this crop in every section of the State. The indications are that there will be several thousand more acres in crimson clover in this State this year than was ever grown before. It can be used (1) as a soil improver; (2) as a hay crop; (3) as a winter cover crop; (4) for early spring grazing. It is an annual, making its growth in late fall, winter and early spring. It will mature and come off in time to grow a crop of corn east of the mountains; while west of the mountains it will grow to

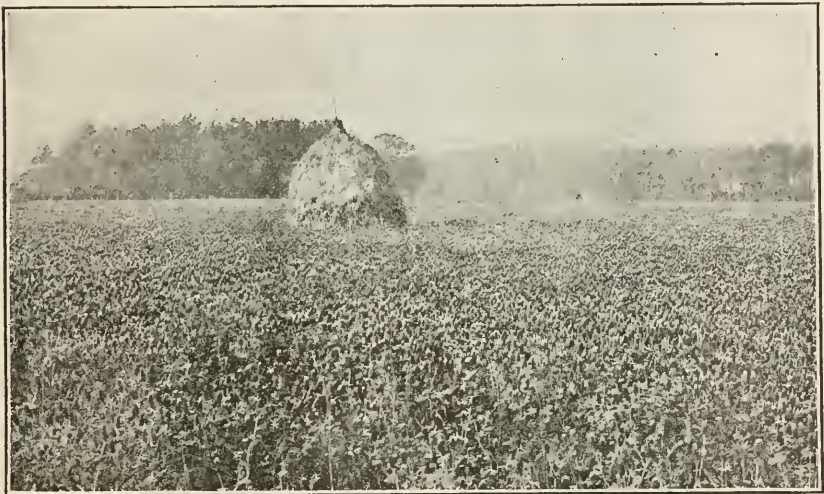


FIG. 10.—Crimson clover in an old cornfield. The clover was seeded in the corn at the last cultivation. A fodder stack is to be observed in the middle foreground. The cornstalks have been removed to avoid difficulty in mowing the clover.

U. S. Bulletin No. 550.

sufficient size to be plowed under in time to plant a crop of corn. In the cotton section it will make growth enough before time to break land for cotton to justify growing it. It will grow in soils of proper conditions from white sand to heavy clay, though it will do best on a fertile soil, well drained and limed. The writer has seen crimson clover grow on almost pure sand where lime had been applied and there was some humus in the soil. Drainage, lime and inoculation will make it grow in almost any part of the State. While it grows best on fertile soils, farmers will realize most benefit from it on thinner soils as the bacteria are more active in a thin soil than in a very fertile soil. Ino-

cultivation is one of the essentials in growing crimson clover. Soil from a clover field usually gives better results than the cultures, though the latter if used according to directions and the seed sown immediately after being treated, and on a cloudy day or very late in the afternoon usually gives good results.

Crimson Clover Hay.

If the crop is intended for hay it should be cut just as it gets in full bloom. Do not wait for the bloom to commence to dry up as there

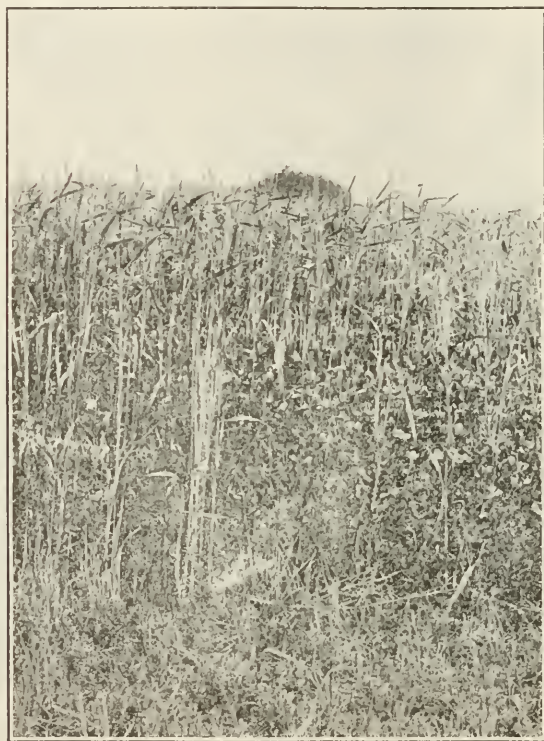


FIG. 11.—Crimson clover and wheat in mixture. In the foreground the crop has been cut and fed green to stock. The remainder was cut the next day for hay. The grain prevents the crimson clover from lodging.

U. S. Bulletin, No. 550

will be danger in feeding the hay to horses if cut at that stage. The seeds form in a rough shuck or covering and when these are dry will form into balls in the horse's stomach or intestines and may cause death. Cut at the proper time it makes a fine and nutritious hay.

Time of Seeding.

Crimson clover can be sown in growing crops or on land especially prepared for the crop. In the latter event the land should be plowed sufficiently long before time to sow the clover to allow it to receive two or three rains so as to settle it. When sown in corn it should be sowed at the last working of the corn in the mountainous part of the State, while in the eastern part or cotton belt it will be better to not sow it until September. In sowing in standing cotton it is best to sow it immediately after the pickers and then cultivate in with a five tooth cultivator or some kind of a harrow. The seed should be covered from a half inch to an inch deep. Some claim to have had good success in sowing the seed in cotton and not covering with a harrow or other implement. This I consider hazardous unless a spell of wet weather follows. The writer has tried the plan and never secured a stand with that practice. It is also much better to sow the seed when there is a season in the land. To sow them in dry hot soil unless rain follows soon often proves disastrous. The crop is too valuable to slight and fail to get a stand.

Sowing Seed.

When crimson clover is sown alone apply 15 to 20 pounds of clear seed per acre, or three times as many by weight when they are sowed in the shuck or in the rough. If to be sown with wheat, rye or oats, sow ten pounds of crimson clover and one bushel of wheat per acre or the same when sown with rye or oats. I have seen fine results where turnip seed and crimson clover were sown together. In that event the turnips should not be sowed as thickly as if no clover was sown with them. The turnips are taken out for use in the winter and early spring and the clover then takes possession of the land.

As a soil improver crimson clover stands very high. I have known the yield of corn doubled in one season when a good crop of crimson clover was plowed under. Know a field that has in three years gained from 15 bushels per acre to 40 bushels. Only crimson clover and 16 per cent acid phosphate was used on the field.

Mr. C. L. Goodrich of the U. S. Department of Agriculture says: "I have a small farm up in Maryland. When bought in 1904 it had on it a crop of corn which produced 8 bushels per acre. In 1908 I took from it an average of 60 bushels per acre. At the start I tried to sow crimson clover, but the land was too poor, so I worked awhile with cow peas, bought some stable manure and put it under cantaloupes, following them with Irish potatoes, using commercial fertilizers. I then succeeded in getting a stand of crimson clover, which was plowed under for corn. The first crop of corn after this cover gave 60 bushels per acre without any fertilizer. This was repeated again next year, a second crop of crimson clover having been turned under. Then we had some very dry summers, and I could not get a catch of crimson clover, and had to rely on commercial fertilizer, with the result that crop yields ran down. Last year I got a good stand of crimson clover, which was turned under this spring for corn, and my crop bids fair to be as high as 80 bushels on some parts, with an average of not less than 60. I believe that

where crimson clover will grow, it is the best manure to put under the corn crop."

I regard crimson clover a very fine crop to turn under for cotton,

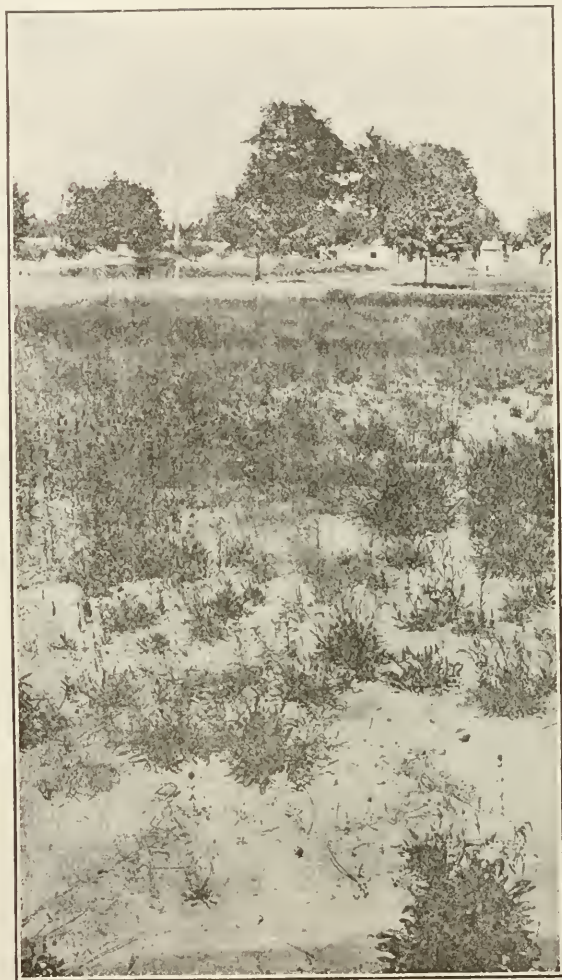


FIG. 12.—A crimson-clover failure on ground too poor in humus.
U. S. Bulletin No. 550.

though it must be turned under much earlier for cotton than is necessary for corn. For cotton it should be turned under at least two weeks before the cotton is to be planted, and possibly three weeks might be better. If the clover is only 6 inches high when turned under it will do a great deal of good.

Bur or Spotted Clover.

Bur clover (*Medicago maculata*) is another of the legumes that should receive more attention at the hands of our farmers than it is



FIG. 13.—Bur clover stem, showing leaf, bur and flower development.

now receiving. Especially is this true of the eastern and sandy soils of the State where it seems to do better than on heavier soils in more elevated districts. Bur clover is an annual, but where permitted to

mature seed readily reseeds itself. In fact, there is a field of bur clover at the Edgecombe Test Farm which has reseeded itself for the past ten years.

Bur clover's chief value is as a soil improver, though it can be made into hay, but the quality does not compare with hay made from the other clovers.

From the July, 1904, BULLETIN, issued by the North Carolina State Board of Agriculture, I find the following concerning this plant:

"Bur clover (*Medicago maculata*, Sibth). Annual, much branched, 15 to 60 branches at the base, ascending and spreading, smooth; stems 15 to 30 inches long. Leaves petioled, three-parted; leaflets broad at the apex, pointed at the base, emarginate, cuneate, wavy margin, 3-8 by 1-2 inch; stipules, small, dentate. Flowers yellow, 1-8 inch long, in small heads of two to four. Pods 1-4 by 3-4 inch, spirally twisted in two to four coils; coils flat, veined, each provided with two rows of reflex prickles. Seeds three to five to the pod, 1-8 to 3-16 inch long, strongly kidney-shaped, deep yellow in color. Nitrogen tubercles forked, rather flattened, 1-8 to 1-2 inch in diameter. Native of Europe and Asia, supposed to have been introduced into America in ship ballast.

"The two illustrations (Nos. 13 and 14), and the printed matter give a fair idea of the growth and habits of bur clover. When the stand is thin single plants occupy considerable space, varying from 2 1/2 to more than 4 feet square. On plants of ordinary size we have found 40 or more stems, with 60 or more burs, each bur bearing 3 to 7 seed, usually 5. On this basis a single plant would have 2,400 burs and 12,000 seed.

Inoculation of Soil for Bur Clover.

"To grow bur clover successfully on a soil that has never grown this legume, it is generally unnecessary to resort to artificial inoculation, as the burs containing the seed after maturity fall to the ground and have to be swept up, hence enough germs will be contained in the soil that clings to the burs to insure tolerably complete inoculation when they are sown. On an uninfected piece of land, certainly the inoculation will be completed by the beginning of the second year.

Bur Clover for Soil Improvement.

"As shown in Table 1, bur clover, as an average of two years' experiments—1903 and 1904—has produced on the fine sandy loam soil of the Edgecombe Test Farm 2.91 tons of hay per acre, the fertilizing constituents of which, at the prices assigned them in mixed fertilizers this year, are worth \$36.24 per acre. Of this amount \$28.27, or 78 per cent, is due to the nitrogen it contains, which was gathered principally, as with vetch, from the air through the instrumentality of bacteria inhabiting the nodules on the roots of the plants. With this legume 87.2 per cent of the total nitrogen and 89.5 per cent of the total fertilizing constituents are contained in the stems, leaves, leaf-stalks, burs, seeds, etc. This leaves in the soil, after removing the tops, 12.8 per cent of the total nitrogen and 10.6 per cent of the total fertilizing constituents of the entire crop as roots and stubble.



FIG. 14.—Bur clover plant, Edgecombe Test Farm, May 12, 1903.

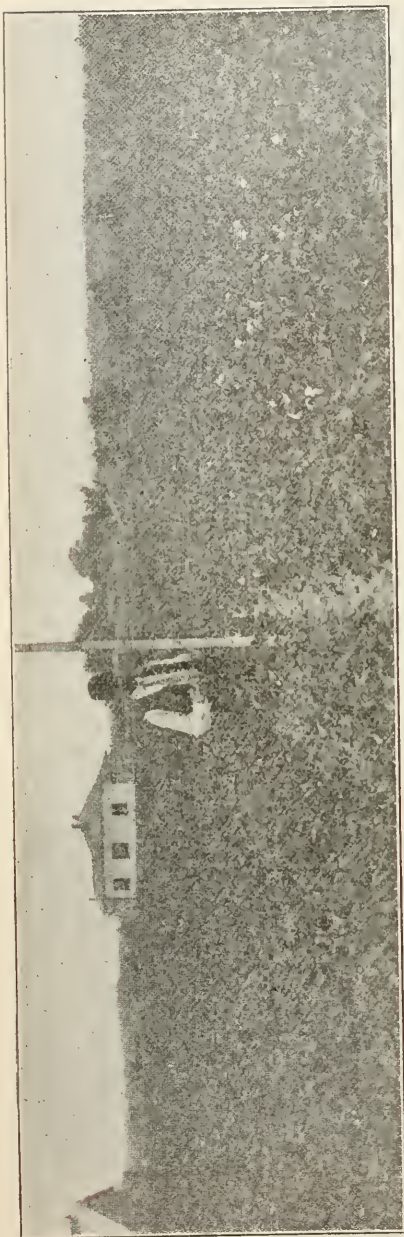


FIG. 15.—Cotton after bur clover, fertilized with acid phosphate and kainit only (K. P.). Yield per acre, 1,020 pounds seed cotton.

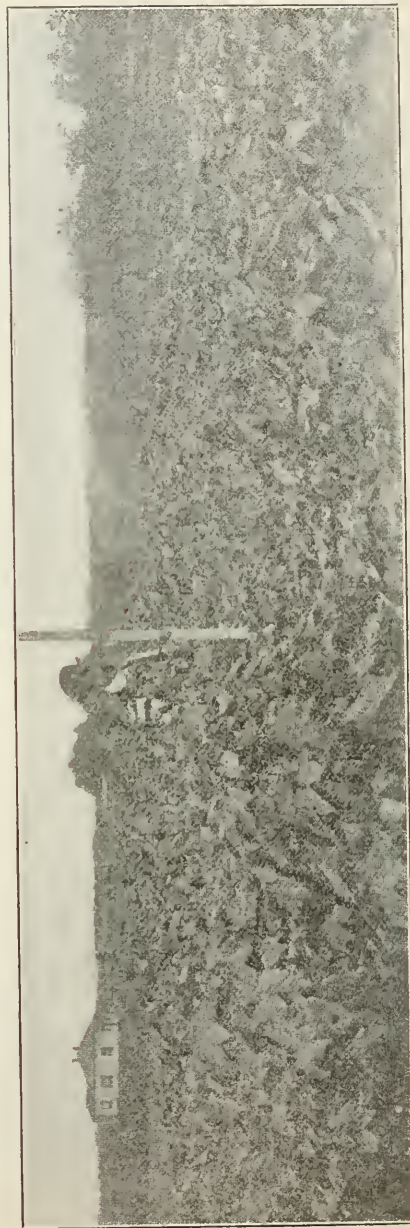


FIG. 16.—Cotton close to plot shown in Fig. 8, fertilized with acid phosphate and cotton-seed meal (N.P.K.). Yield per acre, 1,220 pounds seed cotton.

"In Fig. 15 is shown cotton following a crop of volunteer bur clover and fertilized with 28 pounds of phosphoric acid (200 pounds 14 per cent acid phosphate) and 10 pounds of potash (80 pounds kainit) per acre in the form of acid phosphate and kainit, while Fig. 16 shows cotton following cotton and fertilized with 200 pounds of acid phosphate, 80 pounds of kainit and 120 pounds of cotton-seed meal. In other words, Fig. 15 shows cotton to which the nitrogen was supplied by a previous crop of bur clover, and Fig. 16 cotton to which a complete fertilizer had been added. The plat on which bur clover supplied the nitrogen yielded 1,620 pounds of seed cotton per acre, which was exactly 400 pounds in excess of the plat receiving an application of a complete fertilizer. This 400 pounds of seed cotton sold for \$18, and deducting from this \$2 for picking and excess hauling, we have a gain of \$16 per acre in favor of the bur clover plat. It must also be remembered that this gain was made with a commercial fertilizer containing no nitrogenous material and costing 46 per cent less than that applied to the plat (Fig. 16) receiving a normal application of fertilizer. The more luxurious growth of the cotton following bur clover is readily seen by comparing the growth in Fig 15 with that in Fig. 16. On the bur clover plat the cotton averaged from 3 1/2 to 4 1/2 feet high, while in the plat receiving a normal fertilizer application the average height was only from 2 to 3 1/2 feet.

"Fig. 17 shows a very productive growth of corn after a crop of bur clover in 1903. Almost every stalk bore two or more well developed ears per stalk. The corn was planted after a crop of bur clover seed had been harvested. The seed left on the ground reseeded the land, which produced a good volunteer growth of clover in 1904.

"We can more fully appreciate the value of this plant as a soil improver when we see from Table 1, as an average of two crops on the Edgcombe farm, that the entire plants on one acre contained 162.1 pounds of nitrogen. It would require 2,456 pounds of cotton-seed meal, containing 8 per cent ammonia, to furnish this quantity of nitrogen, which was obtained largely from the air by the clover.

Bur Clover for Pasturage.

"In addition to its value as a soil improver, bur clover is an excellent grazing crop. When sown in corn or cotton at the last cultivation in July or August, it comes up in time to give some grazing in the fall. As soon as spring opens the clover puts out rapidly, sooner than most other plants, and gives good grazing from the first of March, often in February, and up to the first of April, when it is well to remove stock and give an opportunity to produce seed and tops for soil improvement. Calves, sheep and hogs grazed our crop on the Edgcombe Test Farm until the first of April this year. By the 20th of May it had reached a height of 2 1/2 feet, producing air-dried hay at the rate of over 3 1/2 tons per acre. The average yield for two years has been 2.9 tons per acre. This shows how rapidly it makes its growth. Stock do not like it well at first, but as there is but little green material to be had in the winter and spring, they soon become accustomed to it and graze it readily. It is a specially good grazing crop for hogs, sheep and cattle.



FIG. 17.—Corn after bur clover, 1903, Edgecombe Test Farm.

TABLE I.—WEIGHT, COMPOSITION AND FERTILIZING VALUE OF AIR-DRIED BUR CLOVER

LEGUME.	Weight of Air-dried Crop in Pounds per Acre.	PERCENTAGE COMPOSITION.			WEIGHT IN POUNDS OF FERTILIZING CONSTITUENTS PER ACRE.			VALUE OF FERTILIZING CONSTITUENTS PER ACRE.			Total Value Fertilizing Constituents.	
		Moisture.	Phosphoric Acid.	Potash.	Nitrogen.	Phosphoric Acid.	Potash.	Nitrogen.				
1903.												
Bur Clover, stems, leaves, burs and blooms.	4,396	8.70	.42	2.69	2.02	18.46	118.25	88.80	\$.83	\$ 6.50	\$ 17.76	\$ 25.09
Bur Clover, roots and 2-inch stubble.	704	6.79	.54	1.04	1.86	3.80	7.32	13.09	.17	.40	2.62	3.19
Total.	5,100					22.26	125.57	101.89	1.00	6.90	20.38	28.28
1904.												
Bur Clover, stems, leaves, burs and blooms.	7,288	8.75	.60	1.66	2.66	43.73	120.98	193.86	1.97	6.65	38.77	47.39
Bur Clover, roots and 2-inch stubble.	1,558	7.07	.44	.64	1.83	6.86	9.97	28.51	.31	.55	5.70	6.56
Total.	8,846					50.59	130.95	222.37	2.28	7.20	44.47	53.95
Average for two years,	5,842	8.73	.51	2.18	2.34	31.10	119.62	141.33	1.40	6.58	28.27	36.24
{ stems, etc.												
{ roots, etc.	1,131	6.93	.49	.84	1.85	5.33	8.65	20.80	.24	.48	4.16	4.88

Where it is only desired to have enough seed produced to reseed the clover, it may be grazed until the middle of May or even later. In fact, its running habit makes it almost impossible to graze it so closely as to prevent its producing enough seed to reseed itself.

"It grows well on Bermuda sod and in connection with it it will give almost continuous pasturage, as the Bermuda comes up early in May, about the time the clover is giving out, and continues until frost, when the clover is beginning to furnish grazing. To start the clover on Bermuda sod broadcast the seed and scarify the sod, so as to cover them lightly.

"Because of the ease with which bur clover reseeds itself, its value as a soil improver and grazing crop, and the readiness with which it fits into rotation with cotton and corn, makes it a most valuable crop for growth in connection with cotton and corn farming. Both cotton and corn may follow bur clover without the trouble or expense of re-seeding the clover.

Soil.

"Our experiments with bur clover have been mainly on the sandy soils of the eastern part of the State, where for the past two years it has made a most excellent growth, reseeding itself after the first sowing. It does best on the heavier types of sandy soil which are underlaid by clay subsoil, and which are generally moist, but it grows well on the lighter types of sandy soil, and will, we think, after the first year, make a satisfactory growth on most eastern soils where the drainage is fairly good. A small area has been grown one year on the clay land in the Piedmont section of the State with fairly good results, and it seems likely that it will succeed in that portion also. In the States to the south of us, it grows well on moderately stiff prairie land, which would indicate that it will likely succeed on most of the soils of this State, where the climatic conditions are favorable.

"We are making experiments with it in different sections of the State, with a view of obtaining information on this point.

Preparation of Soil and Seeding.

Where this clover is to be sown by itself the land may be prepared as for grain or grass crops. Our experience has been mainly broadcasting the seed in corn and cotton and covering them at the last cultivation of these crops, the latter part of July or early in August. This is done by the use of cultivators, which only cover the seed one to two inches deep. This method would likely not work so well where ridge culture is followed and the turning plow is used for "laying by" the crop, as the seed would likely be covered too deeply by this method. The seed may be sown as late as the middle of September, but seeding should not be delayed beyond this, as it requires considerable time for the burs containing the seed to become sufficiently moist for the seed to germinate. When planted this late seed may be broadcasted in cotton, corn or other crops, and then worked in lightly with harrow or cultivator, using a short single-tree to prevent injury to crops in narrow rows. Two bushels of seed will give a fair stand the first year (four

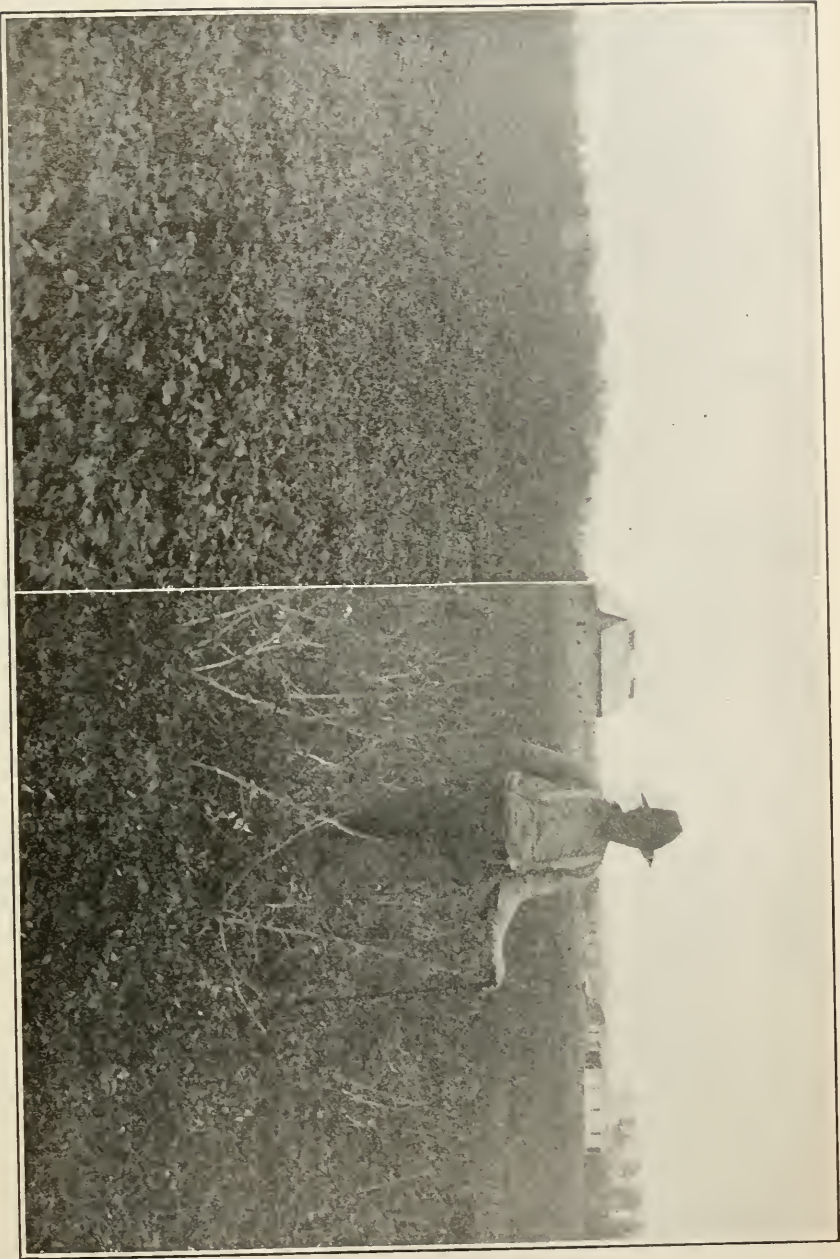


FIG. 18.—Bur clover after cotton, clover 15 inches high, April 15, 1903.

bushels will give better results), after which it will not be necessary to reseed if the crop is given proper treatment and an opportunity to mature seed, as referred to under "Reseeding".

Reseeding.

"When Grown in Rotation with Corn.—Bur clover will mature enough seed by about the 20th of May to thoroughly reseed the field for another year. As soon as sufficient seed have matured for reseeding and the season will permit, the land on which the clover is growing should be broken thoroughly with a two-horse plow and then run over with a cutaway harrow. The corn rows should be run from four to five feet apart and a fertilizer application of a mixture of 200 pounds of acid phosphate, 100 pounds of kainit applied in the drill when the corn is planted. By this method it will be possible to get the corn in the ground early in June, which has been found the best time on the fine sandy loam soil of the Edgecombe Test Farm, especially when fertilizers are to be used. The corn should be reduced to a stand of 18 or 20 inches on medium land. As it will require few cultivations, the entire cost of the corn crop for fertilizer and labor, up to time of harvesting, should not exceed \$4.50 per acre, and a crop of from 20 to 60 bushels of shelled corn per acre should be expected on fairly good land with an average good season. Fig. 11 shows corn which was treated in this way.

Excellent results have also been obtained by running off the corn rows in the bur clover field during March, April or early May, and applying the fertilizer in this furrow. Then two furrows are thrown on the fertilizer with turning plow and after allowing to stand awhile the corn is planted in the usual way. This will leave between the corn rows a middle some two feet wide of growing clover. Now, without disturbing this middle, the corn is cultivated one or more times with a suitable plow or cultivator before the seed of the bur clover have matured. As soon as the seed are ripe the middle is broken out by means of a one-horse turning plow, followed shortly by cultivation with a Plant Jr. cultivator, which should level down and pulverize pretty thoroughly the land between the rows. This will ordinarily conclude the cultivation for corn. Bur clover when treated as indicated above will mature enough seed to be assured of a good stand the following fall and spring.

Bur Clover as a Cover Crop and Soil Protector.

"From what has preceded it will be readily seen that bur clover has special advantages as a cover crop for orchards and other places where protection is needed in fall, winter and early spring. It is during these parts of the year that our lands are most exposed to washing from the surface and the loss of plant-food from leaching. The clover will prevent this to a large extent, at least, by appropriating the plant-food as it becomes available and then after the clover dies down in the spring will leave the plant-food it took from the soil and collected from the air in the land for the use of succeeding crops. After it has matured seed, other crops may follow; orchards may be cultivated and later planted in peas, in case it is desired. This procedure will enrich the land very rapidly and at small cost. Liberal applications of acid phos-

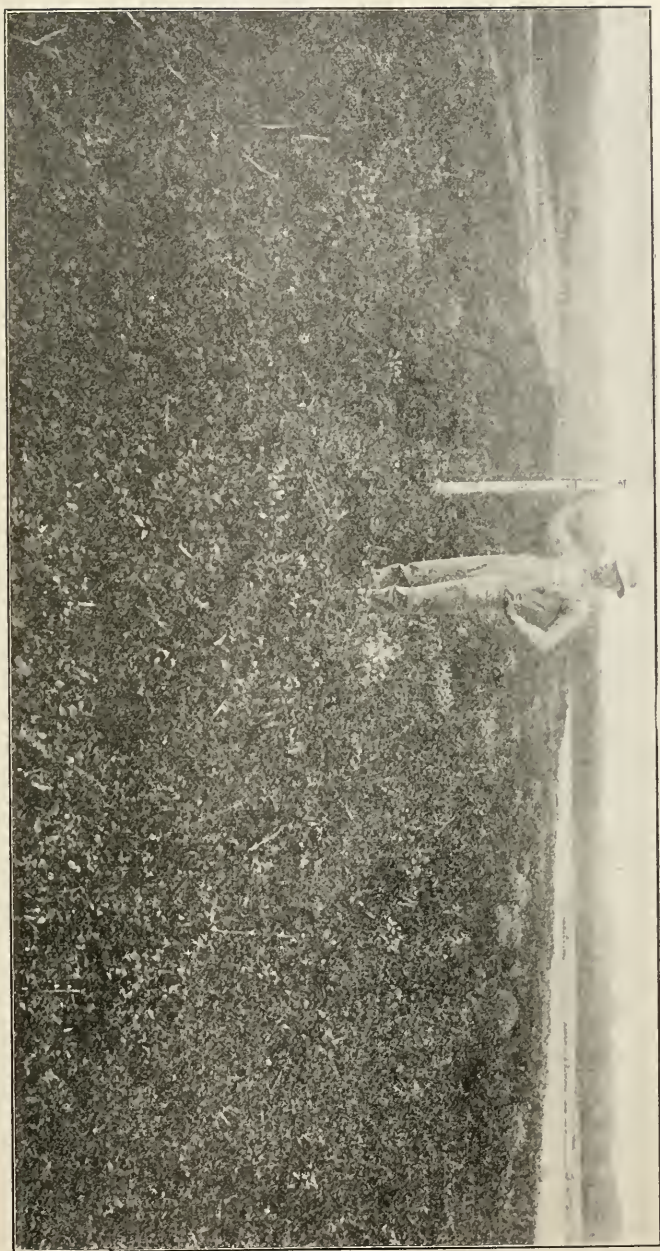


FIG. 10.—Bur clover after cotton on sandy land, Edgcombe Test Farm, May 12, 1903.

phate and potash salts should be used in connection with soil improvement with bur clover and cow peas. It is not intended to suggest that bur clover will take the place of cowpeas, but rather to supplement the



FIG. 20.—Sweet-clover plant near the end of the second season's growth.
U. S. Bulletin No. 435.

work of the latter, the growing season of which begins about the time the clover has finished its mission. They fit into each other therefore nicely, and can be grown to the greatest advantage in connection with general and many kinds of special farming in this State."

Sweet Clover.

Sweet clover (*Melilotus alba*) is another plant that will soon be knocking at the doors of the North Carolina farmers for recognition. It is classed among the best soil improvers and also as a large yielder of hay, which if cut at the proper time makes hay of higher feeding value than red clover, though it is not liked as well by stock until they become accustomed to eating it. It grows best in limestone soils, but will thrive in almost any soil that is well drained and not too acid. It



FIG. 21.—Roots of melilotus (sweet clover) showing nodules.

U. S. Bulletin No. 435.

will make a good growth in soils too poor for either alfalfa or red clover.

This plant is a native of Asia and came to us from Europe 150 or more years ago. But it is in recent years that its value has been recognized. In Kentucky it grows along the right of railways to a height of 8 or 10 feet. It also flourishes in the limestone sections of Mississippi, Alabama and in other states. Numerous correspondents of Wallace Farmer, of De Moines, Iowa, speak in high terms of it as a hay plant and for pasturage. However, on account of its bitter taste stock do not take readily to it until they have become accustomed to it. Then, it is

said, they eat it readily and thrive on it. It also yields large quantities of honey of a fine quality and for that reason is prized by bee keepers.

Sweet clover is a deep rooted plant and carries the same bacteria that alfalfa does, therefore it will inoculate the soil for alfalfa. By getting it started in old fields or waste land it will occupy it for years as it will reseed itself and bring it up to a state of high fertility. The seed should be sowed in late summer or early spring. The disking of the land is usually a better preparation than to give it a thorough and deep plowing. Twenty-five to thirty pounds of seed are required to seed an acre.

In sowing sweet clover, like any of the other clovers, it is well to inoculate the soil, which in North Carolina can best be done with the pure culture method. Once a person has sweet clover growing, he can use soil from that particular spot of land to inoculate other fields where he intends sowing.



FIG. 22.—Hogs pasturing on sweet clover in Iowa in late October.

U. S. Bulletin No. 485.

Sweet clover is recommended for pasturing all kinds of live stock, but it is better to turn them on it while the clover is young and before it has acquired the very bitter taste that it has after it has become older. By the time it is grown they will have acquired a taste for it and will eat it readily.

For a full treatise on this plant get Farmers Bulletin No. 485 from the U. S. Department of Agriculture, Washington, D. C.

Lespedeza or Japan Clover.

Japan clover (*Lespedeza striata*) is said to be a native of eastern Asia, probably Japan, as its name indicates. So far as I know it was introduced into this State during or right after the Civil War. Many

think it was brought into the State with Sherman's army, probably in the hay fed to their cavalry and other horses. Since its introduction it has practically spread all over the State. I have seen it growing from the sea coast to the mountains, and even beyond the mountains. It grows along roadsides and in fields that have not been cultivated for some time.



FIG. 23.—A plant of lespedeza, showing the upright growth made where the stand is reasonably thick.
U. S. Bulletin No. 441.

Japan clover is an annual, coming up in early spring and continuing its growth until late fall. With us it usually grows from four inches to eight or ten inches in height where the land is good. On real poor land it may not grow to more than three or four inches in height. It

is of an upright nature, and has small purple blossoms immediately above the leaves. These do not appear until summer or fall.

Japan clover is valued principally as a pasture plant, though where it grows high enough it will make good hay. In Mississippi and other of the more Southern States they often get as much as two to four tons of hay per acre. I think I have heard of as much as six tons per acre on very fertile land in the Mississippi valley.

Japan clover is highly recommended for permanent pasture as all kinds of live stock thrive on it. But when used for permanent pasture fire must be kept off of it or the clover will be entirely killed out. It readily reseeds itself where it once grows. When sowing use from 15 to 20 pounds of seed per acre and harrow in. It has the reputation of salivating stock the same as red clover will.

Alfalfa or Lucerne.

Of all the hay crops grown in the United States there is probably none that ranks as high as alfalfa, where soil and other conditions are well suited to it. This is another plant that came from Asia and was introduced first into this country from England more than a hundred years ago, but owing to a lack of knowledge of the requirements of the plant it did not spread over a very large territory when first introduced. In 1854 it is said to have been introduced into California from South America and has gradually worked its way east until it is now grown to some extent probably in every State in the Union. It is known to have grown in and around Hillsboro in this State for the last hundred years, but it has spread little from that section. The late Dr. Hogg of Raleigh sowed alfalfa in his garden, which was immediately across the street in front of the Governor's Mansion, about 25 years ago. A part of the lot was sold some years ago for building purposes and yet there is still some of the alfalfa growing on the land. There are a few fields of it near Raleigh, some of which have been giving good cuttings of it each year for the last four or five years.

Alfalfa is a very deep rooted, long lived plant. I have known the roots to go down over three feet the first year of its growth. It has the reputation of being probably the deepest rooted of all the cultivated plants we have. In the western states it is said that in making cuts for railroads through alfalfa fields it is not infrequent that the roots have been found as much as 18 or 20 feet below the surface, and in some instances much deeper than that. But in North Carolina such conditions would hardly be met.

Alfalfa is not a poor land crop. To grow it successfully it requires a fertile soil, well drained and free from acidity. The area over which we can grow it increases as we become better acquainted with its requirements, and it is also possible that the plant adapts itself to conditions surrounding it so that in a few years we will be able to grow it successfully in almost any part of the State.

The writer has grown alfalfa for several years and has not found it a difficult crop to grow. Fertile soil, drainage, lime and inoculation are the things necessary.

Preparation of Land.

The soil should be plowed deeply several weeks before the seed are to be sown so as to let the land settle into a good firm seed bed. Lime at the rate of from 1,000 pounds per acre up to a ton of freshly burned lime according to the requirements of the soil. If ground limestone is used, twice this amount may be applied. Eight to ten tons of stable manure per acre is also desirable, but in the absence of that substitute



FIG. 24.—Roots of young alfalfa plants showing nodules.

U. S. Bulletin No. 214.

800 pounds of raw ground bone and 200 pounds of muriate of potash, broadcast and well harrowed in.

Seeding and Inoculation.

After the above preparations the land will be ready to seed. Usually the best time to seed in the central or eastern part of the State is about September 1st to 15th. But before seeding the field should be harrowed,

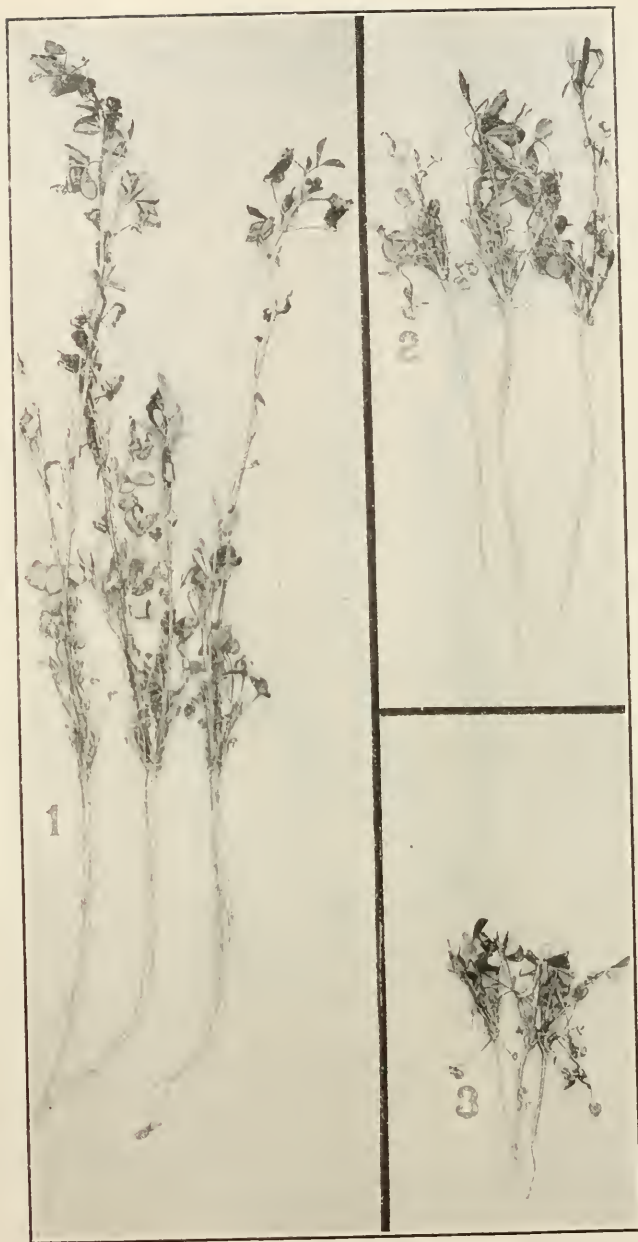


FIG. 25.—Alfalfa seedlings at the beginning of winter. 1, Seeded August 15, 13 inches high; 2, seeded September 1, 5½ inches high; 3, seeded September 15, 2¼ inches high. The larger, early-seeded plants are much better able to withstand the winter than the small, late-seeded ones.

rolled and reharrowed until a good seed bed is formed. Either soil from a field where alfalfa is growing successfully at the rate of 500 pounds per acre, should have been applied and harrowed in, or culture should be obtained to inoculate the seed. Where one has a disk grain drill the seed could be wet and mixed with the soil and sowed out of the fertilizer attachment of the drill. Set the drill to sow from 300 to 500 pounds of soil per acre and have the seed, about 30 pounds per acre, thoroughly mixed with the soil. If no soil is available and culture is to be used, the directions accompanying the culture should be followed to the letter. In seeding it is well when sowed by hand to divide the seed and sow half of them one way and then sow the other half at right angles to the way the first was sowed. In this way there will be a more even distribution of the seed than if they were all sowed one way. This same method would also give more even distribution of the seed when sowed with a drill or with a seeder. They can be covered by a weeder or light harrow, going over the land first lengthwise and then crosswise, covering the seed from a half inch to an inch deep. If soil is of a compact nature, less than one inch of covering will prove sufficient; while if more or less open, the seed should be placed in the soil two inches. In other words, the more open the soil the deeper, other things being equal, the seed may be put with safety. Should the land on which the alfalfa is sown be of such a character as to run together and harden when dry, it will frequently be found advisable to run over the field with a light harrow to break the crust formed should a rain fall before the seed have sprouted very much, because if this is not done a large percentage of the young and tender plants will perish in their futile efforts to reach the air and sunshine. Where spring seeding is permissible or advisable, the same thorough preparation advised for fall seeding should be given for the spring seeding.

In spring seeding, sow early. A great deal is to be gained by the early sowing. For the warmer sections of the State, sow as early as the middle of March and up to the middle of April for the cooler and mountainous sections. However, spring sowing is not advisable in sections where crab-grass grows freely. In these sections it is far preferable to sow alfalfa in the fall.

Treatment First Year.

The first year is the most critical period of its life, for if the proper treatment is not given its failure will almost invariably follow, notwithstanding the fact that the young plants may have started off with every prospect of success. With early fall seeding, it is not usually best to clip before winter, as an eight or ten-inch growth is necessary to carry it through the winter and give it a good start the following spring. Ordinarily the normal mowings for hay when the alfalfa plants have gone to bloom will be sufficient to hold the weeds in check during the first year, as with a good start the preceding fall the plants will usually produce a good crop of hay by the middle of May or before the weeds have had time to prove themselves troublesome.

If at any time, however, the plants turn yellow or the weeds threaten to choke them out, it will be best to set the cutter-bar on the mower

high, and clip the plants back to a height of three or four inches. This treatment will not only tend largely to keep the weeds and grass in subjection, but will also stimulate a stronger and more vigorous growth of the young plants as well as produce a branching of the old stems and multiplying of new stems of the same plant. If the clippings are light they may be left on the ground to protect and improve the soil.



FIG. 26.—Mature dodder plant on alfalfa stem.

U. S. Bulletin No. 339.

If, however, the alfalfa continues to grow and keep green and vigorous, do not clip, but allow it to come into bloom and cut for hay. Do not wait for it to come into full bloom, but cut when from one-fourth to half the stalks show bloom. The quality of the hay from the early cutting is better than if allowed to come into full bloom. The crop can be cut from three to five times a year according to locality and seasons. It is not advisable to cut so late in the fall as to not allow a sufficient growth to protect the crowns of the plants from the cold weather. It is usually safe to not cut it after September, except in the warmer sections of the State, and there, not later than the middle of October.

After the first cutting alfalfa may be cut as often as the plant sends

out shoots from the crown and they get about one or two inches long. This is a better criterion as to the time of cutting than the mere appearance of bloom. When these sprouts start out it is evidence that another growth has begun and the plant is ready to be cut. However, the cutting should not be done before this growth has attained as much as one or two inches in height. Then have the cutter-bar of the mower high enough to not clip this new growth.

Alfalfa Enemies.

Probably the most destructive enemy to alfalfa is dodder. Dodder is a yellow vine that comes from the dodder seed and at once takes hold of the alfalfa plant and twines around it. The vine early dies at the ground and afterward lives entirely on the alfalfa plant. Great care should be exercised to see that no dodder is allowed to get a foothold in a field of alfalfa. The first precaution is to buy only seed that are guaranteed to be free from dodder, and then if any shall appear go over the field at once and cut every alfalfa plant that has any dodder clinging to it and carefully take it out of the field and burn it. The least bit of the vine will take hold of a plant of alfalfa and go on with its work or destruction and filling the field with its seed.

Leaf Spot.

Leaf spot is also a disease that is common to alfalfa but usually does not kill the plant. It causes the leaves to become specked as though stung with some insect, turn yellow or with a red tinge and fall off. The falling off of the leaves lessens the quantity of hay and also the quality as the leaves are the most valuable part of the plant. The best and only remedy that I know for leaf spot is to cut the alfalfa and cure it for hay. The crop following may be free from the disease. It is usually worse in the late fall than in spring or summer.

Alfalfa can usually be cut from three to five times a year, yielding on good land an average of one ton per acre at each cutting. The earlier cuttings will average over a ton per acre, while the later cuttings will not average a ton per acre. In this State the crop will usually run from three to five years before it will run out, or the stand get so poor that it will not pay to keep it longer. When the stand gets thin or it dies out in spots it is time thrown away to endeavor to replant the dead spots. The best thing to do is to replot the field and sow it all over again.

Vetches.

The term vetch used in this BULLETIN refers to Hairy or Sand Vetch (*vicia villosa*), though there are more than a hundred species of this family, of which about fifty are annuals. Those best known to us are the Hairy Vetch, the common or Oregon vetch, the Carolina or wild vetch. The latter grows wild in nearly every part of the State and is known locally as Wild Pea, Partridge Pea, and possibly it has other names. It usually grows to about two feet in height and has quite small violet colored blossoms. It is earlier than the Hairy or common vetch and is relished by stock and makes hay of a good quality.



FIG. 27.—Stem, flowers and seed pods of hairy vetch.

The flowers of Hairy vetch are much larger than those of the wild vetch and are borne in clusters of 20 to 30 blue violet colored blossoms on a long slender vine or stalk. The vines or stalk grow to be from four feet to ten or twelve feet long on very fertile soil. This plant is quite hardy and succeeds in all parts of the State. It is a very fine soil improver and also makes a fine quality of hay, especially when sown with

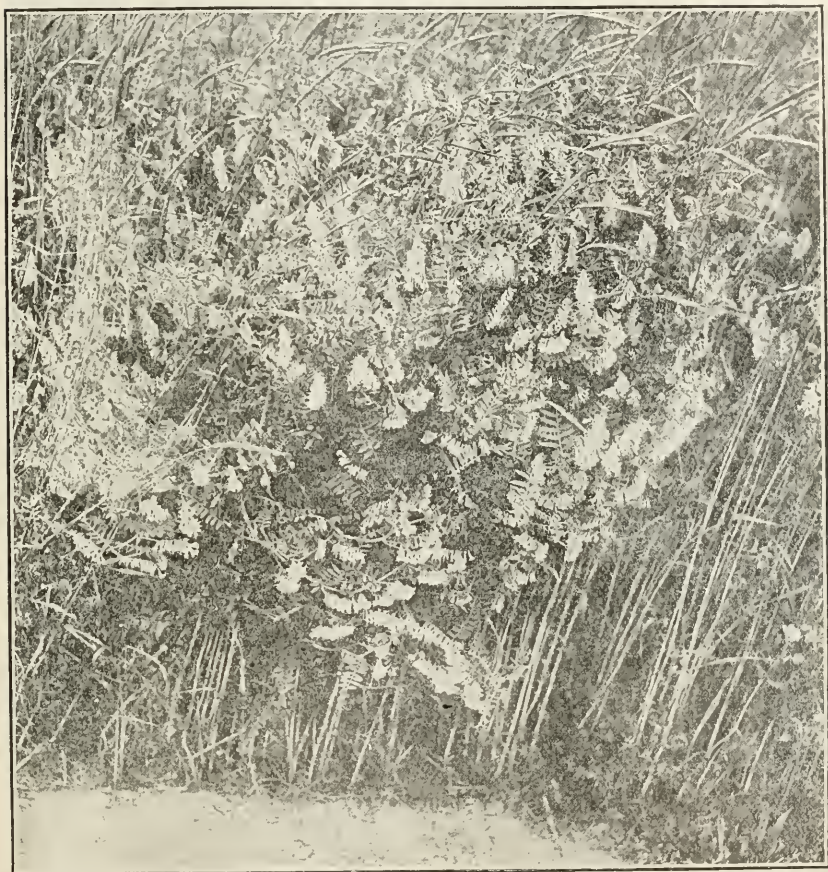


FIG. 28.—Hairy vetch and rye growing together in Virginia.
U. S. Bulletin No. 515.

oats. It improves the quality and also increases the quantity of hay when sown with oats or wheat. Unless it is sown with some crop to hold it up, it lies so close to the ground that it would be difficult to harvest it. It is about the highest in nitrogen contents of any of our legumes, exceeding alfalfa or soy beans in this respect.

Hairy Vetch can be sown from August to November according to location. It can be put in at the last working of the corn or cotton crop

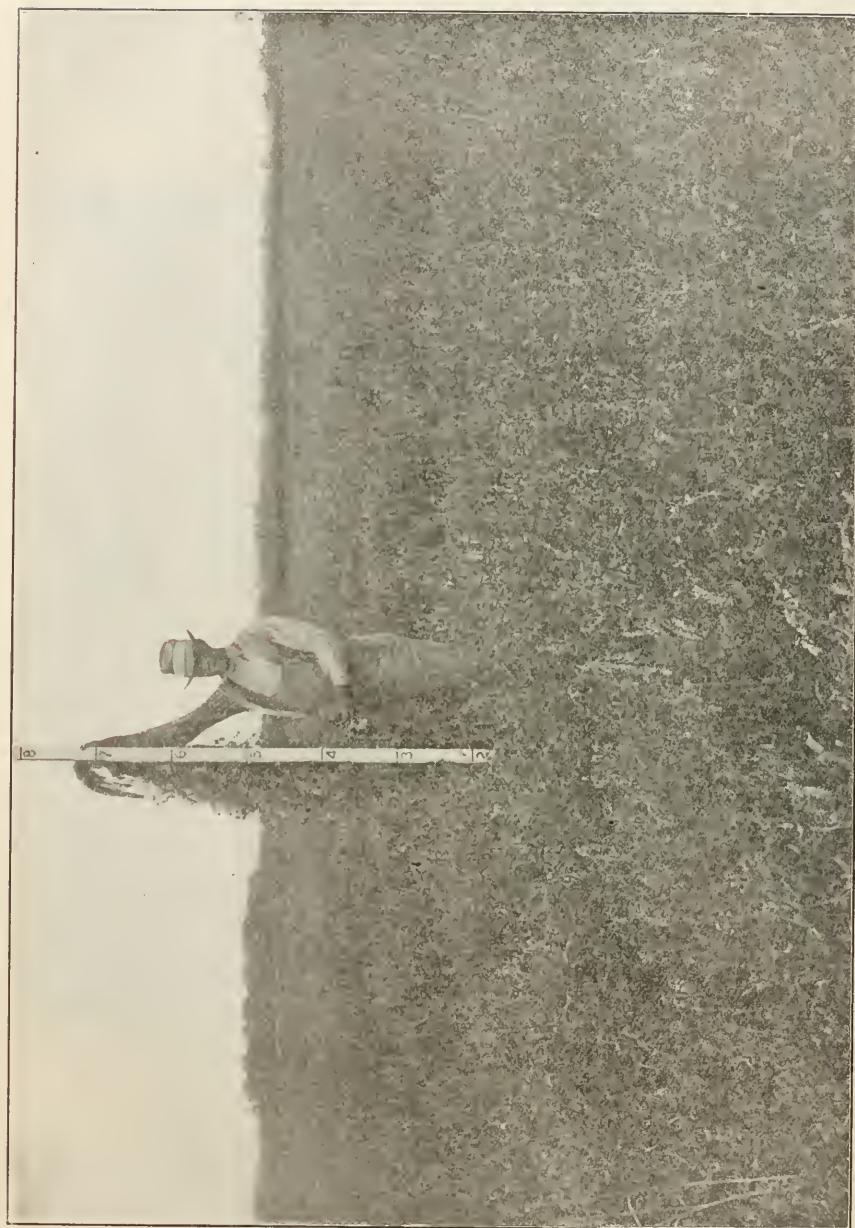


FIG. 29.—Hairy vetch (volunteer crop) after inoculation on sandy land, Edgecombe Test Farm, May 12, 1903. Yield 5,100 pounds per acre.

or can be put in later as directed for crimson clover. When sown alone for soil improvement, sow from a half bushel to three pecks of seeds per acre. When sown with small grain for hay, sow from 15 to 20 pounds of vetch seed and a bushel and a half of oats, or three pecks of wheat, or a half bushel of rye, to the acre. This should be done at the proper time for sowing the oats, wheat or rye.

Vetch hay is easier cured than clover hay. When sown with wheat or oats, cut when the grain of the wheat or oats is in the dough stage. For hay, vetch is preferable to crimson clover as it is not so apt to cause the formation of the so-called "hair balls" in the intestines of horses as does over ripe crimson clover; also, it makes a hay higher in protein contents than clover will.

For inoculation use either soil from a field that has recently grown vetch or use the culture as for other legumes.



FIG. 30.—Field of Iron cowpeas broadcasted thinly.

U. S. Bulletin No. 318.

Cow Peas.

Cow peas are too well known in North Carolina to need any description in this BULLETIN. They are the most widely distributed legume crop that we have. The acreage in cow peas probably equals that of all the other cultivated legumes grown in the State. They are good for man and beast, and also for the land. When properly cured they make a hay almost equal to wheat bran in feeding value. A ton of good cow pea hay contains more than three times the protein that timothy hay has, and about one-third the nitrogen contents of a ton of cottonseed meal. The acreage grown in cow peas has very much increased within the

past few years. The greatest drawback to growing them is the cow pea wilt, a disease that will live for years in the soil and for which there is yet no known remedy, except a long crop rotation in which cow peas nor beans of any kind should be grown. Even then it might require several years for the disease to die out of the soil.

Wilt is a soil disease and attacks the pea at any time from germination up to its full growth, but usually when they are from four inches to a foot high. The leaves begin to droop, turn yellow and fall off, and the plants die. Where the wilt exists the only way to grow cow peas is to plant wilt-resisting varieties, the best of which are the Iron and Brabham varieties.

Another great drawback is the manner of harvesting them for seed. The usual custom is to hand-pick, which is very slow, but about the surest of any way yet tried. There have been several pea harvesters put on the market, but I do not know that any of them have proven a success under all conditions. Where the peas are of the bunch variety and stand up in good shape, the harvester will gather them all right. but when they sprawl all over the ground I know of nothing but the hand picker that will get them clean. Until some means of gathering them cheaply is brought out we may continue to expect high priced peas.



FIG. 31.—Method of curing cowpea hay, near Goldsboro, N. C.

Original. Photo. by J. M. Gray.

Pea Vine Hay.

For hay making the more erect varieties are easiest handled. Cutting the long vined trailing varieties for hay is a job. For that reason I prefer the erect or semi-erect varieties for this purpose.

In making pea vine hay it will be well for farmers who have been making it for some years and who have succeeded with their method.

to stick to it until they are convinced that a better plan is proposed. Then they can adopt the better plan.

The writer has been curing pea vine hay for twenty-five years and sticks to the plan he has been successful with all these years. His plan is that of using short stack poles about ten feet long. Set them in the ground some eighteen inches deep, or enough so the wind will not blow them over. Nail two cross-pieces about five feet long at right angles to each other, about ten or twelve inches above ground so as to prevent the vines from lying on the ground. The vines are cut after the dew is well dried off and let lie until the following evening, if the weather will permit, then rake into good-size windrows before the vines become damp from dew and let them remain there until the following day, when they are carried to the stack with the hay rake, which is a rapid process. The vines are placed around the stack pole and on the cross-arms, without tramping, until about three feet high. Then nail on one cross-arm and pile on vines until about three feet more are on. Then nail on another cross-arm at right angles to the last one nailed on and continue this until the stack is finished. I like to have the top of the stack pole pointed and a large forkful of vines placed on this and arranged around the stack umbrella-like so as to prevent water from running down the pole. When well cured and it is convenient to do so, we bale the hay and store it in the barn. We use pine poles and by skinning them when first cut and taking them up and stacking away as soon as the hay is taken from them, we find they will last several seasons.

For more detailed information about cow peas, their fertilization, cultivation, varieties, etc., see June, 1910, Bulletin No. 6, issued by the North Carolina Department of Agriculture, Raleigh, N. C.

Soy Beans.

The soy bean, also known as Japan pea and Soja bean, is another of the good things that have come to us from Asia. The writer first grew it in 1872. It was then known as Japan pea. But its real worth and value have not been appreciated by us until within the last few years. The high price of cow peas has given the soy bean an introduction in many counties of the State where it was hitherto unknown. It is an exceedingly valuable acquisition to our hay and forage crops. It also yields large crops of beans in the black soils of the eastern part of the State. I have had farmers tell me they could make as many as 35 to 40 bushels of beans per acre. Of course those are exceptional yields, but it shows the possibilities of the soy bean. It makes hay of the finest and most nutritious quality. In fact it has a higher feeding value than cow pea hay, which is saying a good deal for it. As a forage crop, especially for hogs, it is exceptionally fine. For best results the hogs should be turned on them about the time the bean in the pod has reached its full size, and before it begins to harden, while the leaves are still green. The hogs will first eat the leaves, then the remainder of the plant until there is only the hard stalk left.

While soy beans are best adapted to the eastern part of the State they also do well in the Piedmont section and in the mountains. In fact they will do better in the mountains than the cow pea will, because it can be planted earlier and will stand frost better than the cow pea. Another advantage the soy bean has over the cow pea in the cow pea wilt section is it is more resistant to wilt than the cow pea. Good



FIG. 32.—A plant of the Mammoth variety of soy bean, showing its characteristic habit of growth. Height, 40 inches.

From Farmers Bulletin, 372.

crops of soy beans can be grown where the cow pea wilt exists, but in doing so you prolong the time of getting rid of the wilt.

Varieties.

There are probably 40 to 50 varieties of soy beans, but we are interested in those now known to be best adapted to the soil and climate of our State, which are Mammoth Yellow and Hollybrook. A brown variety has been introduced into the eastern part of the State within the past two or three years and is giving satisfaction, but I do not know the name of it. The Mammoth is more largely grown in this State than

all other varieties, but is later in maturing than the Hollybrook, therefore where the seasons are short it would be advisable to plant the Hollybrook. The Hollybrook is also a yellow seeded variety, the seed smaller and the growth not as rank as the Mammoth. Doubtless some of the other promising varieties will soon be tried out at the Test Farms and the results made known to our farmers.

Preparation of the Soil.

Soy beans require good preparation of the soil. Slipshod preparation usually results in either a failure of the crop or a very much diminished yield. They can be either sown broadcast at the rate of a bushel per acre or planted in rows and cultivated. The latter plan gives best results. The rows should be from $2\frac{1}{2}$ to 3 feet apart and the



FIG. 33.—A field of the Mammoth variety of soy bean in North Carolina.

Farmers Bulletin 372, U. S. Dept. of Agriculture.

beans planted in hills of three or four beans every 6 or 8 inches, or distributed along the row at the rate of one bean every 2 or 3 inches. The locality in which they are planted, the soil and drainage, should govern the width of the rows and also the distance the beans are in the row. In the rich black soils of the eastern part of the State the distance should be greater than in the central or western part of the State. They should not be covered over an inch deep. Early planting usually gives better results than late plantings. Care should be exercised in securing seed for planting. It is not safe to plant seed that have been carried over a year. They deteriorate very rapidly. Unless properly cared for when first harvested they will heat and their power of germination will be weakened. In purchasing seed buy only bright plump seed, the viability of which is guaranteed. In the eastern

and central part of the State they can be planted from April to the middle of July, but the April and May plantings will be more satisfactory.

As soil improvers they do not rank with the cow pea when cut for hay. This is because they can be harvested much cleaner than cow peas and also their root system is not as large as that of the cow pea. But if the crop is to be plowed under it is probable the results will equal those of the cow pea.

Soy Bean Hay.

Soy bean hay when cut at the proper stage of growth and well cured is relished by all kinds of stock. I have never fed hay that was eaten



FIG. 34.—Roots of soy bean showing nodules.

U. S. Bulletin No. 214.

more readily than a good quality of soy bean hay. The beans in the pod should be about half or three-fourths grown when cut for hay. At that time the leaves are still green and will not readily fall off in handling the hay. Cut after the dew is off and let lie until the afternoon. Rake into windrows and remain until the next afternoon. Then put into tall cocks and let them alone until they get quite warm. Then

spread for a few hours until cool and stack or put into the barn. This plan was given to me by a farmer who lives in the soy bean territory of eastern North Carolina, who said the heating process in the cock had a tendency to soften the stalk and to make the hay of better quality. The plan for curing cow pea hay given in another part of this BULLETIN will also answer for soy beans.

Inoculation.

Soy bean bacteria seems to be more widely distributed than that of any of the legumes, unless it is the cow pea. Soy beans find natural



FIG. 35.—Roots of velvet bean showing nodules.
U. S. Bulletin No. 214.

inoculation in almost any section of the State; therefore it will be unnecessary to inoculate for them unless it is known that the bacteria is not in the soil to be planted. If after growing them one season no nodules appear on the roots, that is evidence that the bacteria are not present in the soil and that inoculation is needed. Soil from a field that has the bacteria or culture for soy beans can be used. Apply as recommended for the clovers, etc.

The Velvet Bean.

In North Carolina the velvet bean could hardly be considered an economic crop for other purposes than that of soil improvement, and only for that in the cotton growing territory.

This plant has been grown in Florida for a number of years, where it succeeded finely, but with us the seasons are too short for its full maturity. For that reason we will have to look to Florida for our seed. It is a rank growing plant, the vines often growing fifteen or more feet in length under favorable conditions.

The seed can be broadcasted or planted in rows, but best results will be obtained when planted in rows and cultivated. When planted in rows the rows should be 4 or 5 feet apart and the hills from 2 to 3 feet apart in the rows. Plant about 3 beans to the hill. They should be planted about the middle of May.

In the vicinity of Raleigh I have seen a field of velvet beans that was waist high when killed by frost. The crop was used for the purpose of turning under for improving the soil. But with our short seasons it is questionable if velvet beans will prove to be a better soil improver than cow peas or soy beans. They can be tried on a small scale and each person determine for himself which crop is best suited to his soil and conditions. They will doubtless do much better and grow a more satisfactory crop on the lighter soils of the eastern and southern parts of the State than they would on the clay lands or heavier soils of the Piedmont section. If nodules fail to appear on the roots, that is evidence that inoculation is needed.

For more detailed information about the legumes treated in this BULLETIN I refer the reader to the following bulletins issued by the United States Department of Agriculture, Washington, D. C. They are to be had by writing to the Secretary of Agriculture, Washington, D. C.

Farmers Bulletin, No. 214, Beneficial Bacteria for Leguminous Crops.

Farmers Bulletin, No. 455, Red Clover.

Farmers Bulletin, No. 550, Crimson Clover.

Farmers Bulletin, No. 485, Sweet Clover.

Farmers Bulletin, No. 441, Lespedeza or Japan Clover.

Farmers Bulletin, No. 339, Alfalfa.

Farmers Bulletin, No. 515, Vetches.

Farmers Bulletin, No. 529, Vetch Growing in the South Atlantic States.

Farmers Bulletin, No. 372, Soy Beans.

The Culture of the Cow Pea, North Carolina Department of Agriculture, No. 6, June, 1910, Raleigh, N. C.

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COMMERCIAL STRAWBERRY CULTURE

By S. B. SHAW.



LOADING STRAWBERRIES INTO ICED CARS.

PUBLISHED MONTHLY AND SENT FREE TO CITIZENS ON APPLICATION.

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‡Assigned by the Bureau of Plant Industry, United States Department of Agriculture.

LETTER OF TRANSMITTAL.

RALEIGH, August 1, 1913.

SIR:—I herewith submit for publication a manuscript on the commercial culture of the strawberry, by S. B. Shaw, Assistant Horticulturist. This work was assigned to Mr. Shaw two years ago, and since that time his investigations have been carried on under my direction on the Pender Test Farm and throughout the commercial strawberry sections. While not neglecting the culture of the strawberry for home use and local market, this BULLETIN is designed especially to encourage the commercial production of this fruit for shipping to northern markets.

I wish to acknowledge the kindness of Professor Sherman, State Entomologist, in preparing the valuable section on strawberry insects.

Respectfully,

W. N. HURT,
State Horticulturist.

Approved for publication:

W. A. GRAHAM,
Commissioner of Agriculture.

COMMERCIAL STRAWBERRY CULTURE.

By S. B. SHAW, ASSISTANT HORTICULTURIST.

There is probably no branch of horticulture that has developed in the past twenty years more strikingly than has the commercial culture of the strawberry. It has grown in a quarter of a century from a more or less general and relatively unimportant business, to a highly specialized one of great importance. While strawberries have been grown for centuries, it has been only within the past decade or so that their commercial culture has attained the prominence it now holds in the fruit-growing industry. Ripening as they do early in the season, strawberries come on the market at a time when every one has a craving for fresh fruit that is not satisfied with the citrus, subtropical, and other fruits that have been on the markets during the winter months.

So far as the growth and perfection of the fruit is concerned, there is no section of the State where the finest strawberries cannot be grown. The main point to be considered in the cultivation of this fruit for market is the fact that the strawberry is grown commercially in all parts of the country, and that each section from Florida to Maine has its own season. Hence, to make strawberries profitable for shipment to the north, they must be grown where the climatic conditions warrant an early ripening of the fruit, so that it can be placed on the market before localities further north come in with their berries. For this reason the culture of the strawberry as a commercial crop has been confined to the lands of the coastal plain, where soil and climatic conditions combine to make this business profitable.

While the coastal section will always be the region for profitable strawberry growing for northern markets, yet the increasing number and size of the towns and cities in the State will create home markets for a great deal of fruit of all kinds. This will naturally result in the development of the strawberry industry in other localities, for the supply of local demands. Home markets are apt to be overlooked and poorly supplied. The demand for berries of high quality is always good and is ever increasing with the annual increase in population. Even with an excess of fruit, there would be room for the development of canning industries to compete with similar establishments in other States.

SOILS AND THEIR PREPARATION.

Strawberries can be grown on almost any type of soil, if the land is well prepared and supplied with a sufficient amount of available plant food. The ideal berry soil is a mellow, well-drained loam. Land that has a natural tendency to bake should be avoided, as it is difficult to keep down weeds on this type of soil, and it is also hard to conserve

soil moisture in a dry time. As a rule, sandy loams will produce early fruit, but the stiffer clay loams usually produce larger yields. There is much advantage in having the land level, or nearly so, as cultivation is more easily carried on and there is less loss of fertility through leaching and surface washing during heavy rains. However, if the level location is situated lower than the surrounding land, it is not advisable to use it, because of the liability to damage from frosts resulting from the settling of cold air from the higher elevations.

There is a difference of opinion as to whether newly cleared land or soil that has had previous cultivation is most desirable for planting to strawberries. Newly cleared land is easier to cultivate on account of there being fewer weeds to contend with. Some growers are of the opinion that this kind of soil will produce better fruit and larger yields than land that has had previous cultivation. In either case, whether the land be new or old, an ample supply of moisture and a liberal amount of readily available plant food must be present in order to promote the growth necessary to make the growing of strawberries profitable. Deep plowing, the presence of plenty of humus, either in the form of stable manure, some soiling crop, or what may occur naturally, and thorough tillage, will improve the physical condition and increase the amount of fertility of almost all soils. This is particularly true of clay and sandy land. Black, peaty bottom-land usually contains plenty of vegetable matter. In addition to deep plowing and careful tillage, soils of this character can best be improved by drainage and the application of lime. As a rule, the more care and attention given the preparation of land the more readily can cultivation be carried on and the more profitable will be the yields.

FERTILIZERS.

One of the most important points to be considered in the growing of strawberries is that of fertilization. Very often growers fail to grasp the significance of this operation in the production of their crops. Where strawberries are grown for home and near-by markets the chief consideration is yield, size, and flavor of the berries. If the fruit is to be sent to more distant markets, texture should be most carefully considered in addition to the other qualities, for berries that are not firm will not stand long transportation. As a rule, an abundance of nitrogen will produce heavy yields and large berries, but sufficient phosphoric acid and potash, in available forms, are needed to develop the flavor, color, and firmness of the fruit. Growers who contemplate sending their berries any distance, even though they be under refrigeration, may well consider the amount of phosphoric acid and potash they are supplying to their plants, for no matter how large and beautiful the fruit may be, unless it is of firm and solid texture, it will not carry successfully.

Well-rotted stable manure is perhaps the best general fertilizer that can be used under average conditions in the growing of strawberries. When applied to the preceding crop there is less danger of injury from the "white grub." While it is doubtless true that stable manure can hardly be equaled, few growers are so situated as to be able to obtain all they need. As a result, artificial fertilizers, or commercial fertilizers as they are commonly called, have been introduced, and in many instances their use has proved even more advantageous than stable manure. These fertilizers are of different materials which contain some form of ammonia, potash, or phosphoric acid, derived either from organic or inorganic sources. Complete fertilizers contain all three of these principal plant-food ingredients. When fertilizing material of this kind is depended upon exclusively, the use of some soiling crop or other source of vegetable matter becomes of the utmost importance in order to supply the soil with a sufficient amount of humus. The use of these fertilizers alone, without the addition of sufficient vegetable matter, will soon leave the land in an impoverished, unproductive condition. As each particular crop requires a certain amount of the necessary elements of plant food, and as soils vary considerably in their content of these elements in an available form, growers can best learn from personal experience the fertilizing material most suitable for their particular land.

The kind and amount of fertilizer used by different growers varies with the location and the natural conditions under which the plant food is to be applied. As a rule, the lighter sandy soils of the coastal plain need more potash and less phosphoric acid than do the heavier clay lands. The most universally used fertilizer in the coastal section, and the one that seems to have produced the most profitable results, is one that contains 8 per cent available phosphoric acid, 3 per cent nitrogen, and 10 per cent actual potash. This is applied at the rate of from 1,200 to 2,000 pounds per acre, in two applications. One application is made about July or August and the other in December or January. Some growers prefer to mix their own fertilizers, believing that in this way they can obtain more satisfactory results at less cost. Fish scrap, tankage, or dried blood are most commonly used as a basis for the nitrogen; acid phosphate, bone phosphate, and muriate of potash as their source of phosphoric acid and potash. Cotton-seed meal is also used in combination with these materials. On some of the heavier loam soils containing more clay, certain growers have found it profitable to apply about 500 pounds of raw bone or dissolved bone per acre two or three weeks before setting the plants. The same application is repeated in the fall at the last cultivation, and continued in the same way the following season. In addition to this, a top dressing of about 500 pounds per acre of a fertilizer having 6 per cent available phosphoric acid, 3 per cent nitrogen, and 6 per cent actual potash is applied in the spring.

Where strawberries are grown for home use and for the local market in the piedmont and mountain sections, stable manure forms a good basis for an excellent fertilizer. This may be supplemented by the use of a fertilizer having a little less potash than that used in the coastal sections. Here, too, the grower can be the best judge as to what will give the most profitable returns, since local conditions and environment influence the growing of all crops in all localities.

VARIETIES.

The selection of suitable varieties is one of the most important things to be considered in the commercial planting of strawberries. In no other class of fruits are there so many varieties to choose from. Some varieties seem to be well adapted to certain conditions, such as a sandy soil and a warm climate, while others do better in a heavy clay soil and a cool climate. No one can tell just which variety will do well in a given section until tests have been made with several varieties. It is well for a grower to make such tests on his own place rather than to take the word of another grower who has tried the recommended variety, but probably under different soil and climatic conditions that would have a big influence on the production.

It is well in selecting varieties to know whether the plants have perfect or imperfect flowers. The perfect flowers have stamens and pistils and are capable of pollinating themselves. Those known as imperfect flowers have pistils only, and are not capable of bearing fruit unless pollinated from some perfect flowered variety.

In selecting a variety having imperfect flowers, care should be taken in planting to have every third or fourth row of a variety with perfect flowers to insure ample pollination. Where strawberries are grown on a large scale for distant shipment, it is generally advisable to select only varieties having perfect flowers. In large commercial plantings, growers are compelled to depend upon all sorts of hired help for harvesting their crops. Where mixed varieties are planted, under conditions of this kind, it is almost impossible to have the pickers keep the varieties separate, and as a result two and sometimes more varieties are put in the same basket. One of these varieties may be more tender than the other, and as a result the contents of the entire package usually presents a very mussy and unattractive appearance when it reaches market. There are, however, instances when it might be advisable to plant two or more varieties together in the same field, notwithstanding the difficulty which may arise in harvesting the crop. In localities where the strawberry weevil has become a serious pest, the planting of varieties having imperfect flowers will in part lessen the damage done by this troublesome insect. As the larva of the weevil eats pollen, its feeding area is very much restricted when only every third or fourth row in the field is planted with perfect flowering varieties.

Of the several varieties of strawberries grown on a commercial scale in the eastern part of the State during the past few years, the Lady Thompson and Klondyke have been the most popular. Most growers in this section seem to consider the Thompson the heaviest yielder, but it does not seem to stand shipping so well as the Klondyke. There is not so very much difference in the average yield of these two varieties, and as a result the Klondyke, because of its good shipping qualities and deep red color, is considered the most profitable variety by the majority of the growers. A newer variety that has gained much prominence in the Norfolk section, because of its superior shipping quality and productiveness, is the Missionary. This variety is being planted by a number of growers who are expecting to find in it a berry of even more desirable qualities than either the Thompson or the Klondyke.

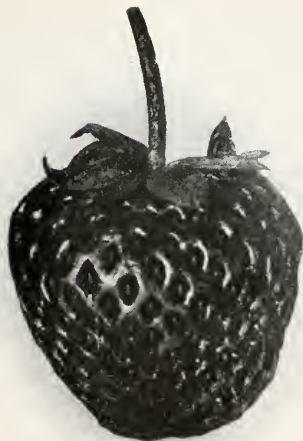
Where growers do not plant on a large scale for shipment to northern markets, there are other varieties of excellent quality that can be profitably grown. The Excelsior and Haviland are two excellent varieties for planting for local or near-by markets. On account of their rather soft texture, they are not well suited for shipping long distances. Both berries are of high quality, the Excelsior being very early and the Haviland a mid-season fruit. There is usually a good demand on the home market for a succession of strawberries from the earliest to the latest varieties. Very often a profitable business can be developed from a succession of this kind when the grower keeps in mind the demands of the home trade.

PLANTING.

Strawberry plants may be set successfully either in Spring or Fall. If good plants are obtainable, early Spring is the most desirable time to plant. At this season the soil is in good condition, cool and moist. When properly cared for and well cultivated, plants carefully set at this time will make rapid growth and will produce a full crop of fruit the following season. However, plants can be set with equal success in the Fall, and where the weather is seasonable, this time is much preferred by many growers.

To properly set plants, shorten the roots in to 4 or 5 inches and cut off about half the leaf growth. With a trowel, spade, or dibble make a hole in the ground sufficiently large to permit the roots being spread out in the shape of a fan. Press the soil firmly about the plant, covering all the roots and the lower part of the crown. The top of the crown should be a little above the level of the ground. This allows the growing plant to develop without hindrance. Should the plants be set too deep the crowns may rot; if too shallow, or if the soil is not pressed firmly about them, the roots may dry out.

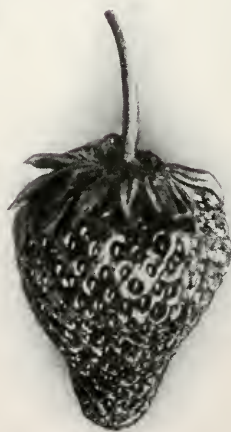
When plants are secured from a distance they should be ordered so as to arrive at a time when the planting can be done immediately, provided, of course, that weather conditions are favorable. If the planting must of necessity be delayed, open the package as soon as it arrives and



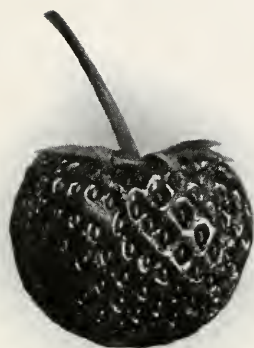
I. Klondyke.



II. Lady Thompson.



III. Missionary.



IV. Excelsior.



V. Haviland.

heel the plants in, in some place where the soil is well drained. Place the plants close together in the trench and cover the roots the same as in planting in the field, but use the same care in not covering the crown of the plant. After bedding plants in this way pack the earth firmly around the roots so that they will not dry out before they are set in the field. If loosely heeled in, plants are apt to die.

CULTIVATION.

The common method of cultivating strawberries in the eastern part of the State, that is, in the coastal section, is to confine the plants to the hill system. Most growers claim that larger yields of better fruit can be produced in this way. The cost of cultivation, however, is increased to a certain extent by this system. All runners must be removed from the main plant, and as this work can best be done by hand, it adds to the cost of production. When weather conditions are favorable throughout the growing season the hill system proves very satisfactory. Sometimes when the season is exceedingly wet these plants make an excess of growth which is not desirable. The semimatted row, or modified hill system of growing strawberries as followed by other growers is not so apt to make an excess of plant growth. The expense of cultivation under this system is also lessened, and those who advocate this method of growing berries claim that it is equally as profitable as the hill system. The hill system of cultivation is shown in Fig. 1. Matted rows are shown as a comparison in Fig. 2.

The fundamental principles of cultivation are applicable to the successful growing of strawberries, whether they be planted in hills or in matted rows. Plants grow, develop, and mature their fruit in proportion to the amount of available plant food at their disposal. The greater part of this plant food is in the soil, occurring naturally, or supplied by artificial means. It cannot, however, be made use of by the plants until rendered available. This condition is brought about by the combined action of several agencies, most important of which are temperature, air, and moisture. Tillage promotes the work of these agencies, and, as a result, influences the growth of the plants, thereby affecting the development and quality of the fruit. Poorly fed, badly neglected plants cannot produce marketable fruit.

After the crop of strawberries has been harvested, deep cultivation can be given the plants. This should continue until about the last of August or first of September, when the plants will begin to send out a number of fresh surface feeding roots. From this time on cultivate shallow and only enough to keep down the weeds. If these new roots are materially disturbed, it will have a similar effect on the plants to root pruning, and as a result next season's crop is likely to be later.



FIG. 1. The hill system of cultivation.



FIG. 2. The matted-row system of cultivation.

MULCHING.

The mulching of strawberries, in the South, is considered by some to be an unnecessary and expensive operation. By others it is looked upon as a necessary part of the work in the production of a profitable crop. There is no doubt that there are several good reasons why mulching can be practiced to good advantage. The primary object in applying a mulch to strawberries is to protect the plants from winter or spring injury. Besides affording protection to the plants, mulching aids in the conservation of moisture in the soil by hindering evaporation, retains the surface soil in a loose, friable condition, and in some instances adds plant food to the land. This is particularly true where stable manure has been applied as a mulch. Mulching also aids in cultivation by checking the growth of weeds. In some sections hay or straw are used for mulching, in other places dead weeds, vines, or leaves are used. In the eastern part of the State pine straw affords excellent material for this purpose. See Fig. 3. When the mulching material is left between the rows and around the plants, after having been raked off of the plants in the spring, it keeps the fruit away from the ground and prevents it from becoming sanded during heavy rains that may come while the berries are ripening. Of the several advantages derived from mulching, this last named is a very important one. No one cares for "gritty" berries, and when fruit of this kind is offered for sale, be it at home or on the distant markets, it is disposed of at a discount that often proves to be a loss to the producer. There is never a demand for gritty fruit at any price.

PICKING.

Frequently too little attention is paid to the picking of the strawberry crop. Often the financial success of the grower depends upon this one operation. The state of maturity at which strawberries can best be picked depends upon the market for which they are intended. Berries for the home or near-by market can be gathered in a much riper condition than fruit intended for shipping long distances. For distant markets, strawberries must be gathered as soon as fully grown and the color well developed. It would be impossible to give exact rules for determining the best time to harvest any variety. This can best be learned by personal experience, guided by the ripening habit of the varieties grown. Some varieties begin to soften before they have taken on much color, while other varieties remain quite firm after having become fully colored.

Strawberries should always be picked with stems on. Fruit that is "snapped" from the plants will not stand long transportation. As berries are gathered they are placed in quart baskets or boxes and carried to the packing shed on trays holding usually from 10 to 12 quarts. Some growers provide special help for carrying the fruit from the field to the packing shed as soon as it is gathered, as illustrated in Fig. 4. This



FIG. 3. Showing pine straw used as a mulch.



FIG. 4. Carrying berries from field to packing shed, as they are picked.

method keeps the berries in much better condition than where they are allowed to remain in the field until brought in by the pickers.

GRADING.

Carefully trained pickers can do all the grading and sorting necessary, as they gather the strawberries. They should be instructed to place all small, inferior, and over-ripe berries into separate baskets, and under no circumstances to put specimens of this kind into baskets with good fruit intended for market. Specially constructed carrying trays can be provided each picker, as illustrated in Fig. 5, on which four baskets can be placed for holding the two grades that are gathered at the same time. Growers who adopt this method of picking and grading pay their pickers full price for gathering the inferior fruit. The establishment of this system among pickers necessitates careful watching on the part of the grower, but those who have tried it have found that it has proved decidedly profitable. This method of grading eliminates the necessity of rehandling the fruit after it has been brought to the packing shed. Trained pickers can also face each basket, thereby increasing the attractiveness of the package. This is easily done while picking by placing the last layer of berries stem end down. Facing is an honest and perfectly legitimate practice, provided the entire contents of the basket are fruits of the same grade as those placed on top. Small and inferior berries scattered throughout the baskets in a crate, be it ever so nicely faced, will give the buyer an opportunity to discriminate against that grower's pack the entire season, and, as a rule, buyers remember instances of this kind from one season to another.

PACKING.

Packing is an important operation in the preparation of strawberries for market. Berries should be cool and dry before being placed in the crate. Heat and moisture promote decay. Conditions of this kind should be guarded against, for decay means loss. Fruit that has become cool and dry before being packed will keep longer and appear to best advantage at the time of sale. No strawberry grower's equipment is complete without a conveniently located packing shed properly arranged for the cooling and drying of the fruit. A building of this kind need not be made of expensive material, but the construction should be such as to allow a free circulation of air and at the same time shade the berries. A well arranged house of this kind is shown in Fig. 6. A shed having ample circulation of air, but not affording much shade for the fruit, is shown in Fig. 7.

Before packing in the crate, see that each basket is well filled, with the berries placed firmly and snugly. Every day, consignments are placed on the market showing evidences of careless packing. Consider for a moment the average route traveled by a crate of berries. The



FIG. 5. Pickers using specially constructed carrying trays.



FIG. 6. A well-arranged packing shed, affording ample protection for the fruit.



FIG. 7. A shed affording ample circulation of air, but little protection for the fruit.

package is taken from the packing shed and loaded into a wagon. It is then hauled, say, from 1 to 6 miles over the average country road to the railroad station, where it is again transferred to a car. After traveling from 20 to 200 miles, and possibly more, it is again unloaded and placed in a wagon and this time hauled for several squares over the city streets, until it finally reaches its destination and is ready to be opened for the inspection of the general public and the criticism of the possible buyer. Unless this crate has been well filled and packed before starting, as illustrated in Fig. 8, it will reach the market in what is commonly called a "slack" condition. The numerous handlings and jarrings received en route will have caused the contents to settle and shrink, and as a result the package will be only partially full. Buyers cannot be expected to pay the price of full packages for those only filled in part.

THE EXPERIENCE OF A PRACTICAL GROWER.¹

"I have thoroughly tried many varieties of berries, and have come to the conclusion that the Klondyke has proved to be the most profitable, although I am inclined to believe that the Missionary may yet be better at my distance ($3\frac{1}{3}$ days) from the markets, as it is a firmer berry than either the Lady Thompson or the Klondyke. I am also inclined to think that the Missionary will prove to be more prolific.

¹The experience here given is that of one of the most successful growers in the State. This man has made a reputation for producing first-class fruit that brings a profitable price on the market. During the past two years (1912-1913) the average net return per acre for his strawberries was a fraction over \$211.86.



FIG. 8. Showing a well filled and packed crate as it appeared on the market.

“So far as production is concerned, I have produced more crates to the acre of Lady Thompson than of Klondyke, but have received more money per acre for my Klondyke than I have for my Lady Thompson, or could ever hope to.

“When berries are to be shipped to places three or four days journey away, it is a mistake to apply too much plant food, particularly nitrogen, in the attempt to produce large berries, as this has a tendency to weaken the texture and carrying quality of the fruit. However, if the

berries are to be sent to markets nearer home, there is not so much danger of overfeeding the plants.

"I have found that newly cleared land that has been thoroughly worked some three or four weeks before setting the plants is ideal, but it is not at all essential to profitable berry growing. Old land, preferably a gray, mellow, moisture-retaining soil, underlaid with red or yellow waxy clay 8 to 10 inches below the surface, will hardly fail to produce a good crop under average normal conditions. I find that where the subsoil is only 6 inches from the surface, subsoiling more than pays for the labor expended. It is true that there are other lands that will produce highly profitable crops of berries. Land, not subject to overflow, on which corn grows well without showing a tendency to 'fire up,' can be depended on to make berries. I have found that land with a whitish clay is not so good, but if the water level is not more than 2½ to 3 feet below the surface it will produce fair yields. Crawfish land, in my experience, will show up well the first year, but the second year the plants will amount to but little.

"After my crop of berries is off, I always cultivate deeply, and find that by so doing my plants are greatly benefited. I continue to cultivate deeply and often until about the 15th of September. At about that time the nights begin to get cool, and the plants, if properly cultivated, begin to send out hungry surface roots. I let these roots remain, and never plow them off, because I find that if this is done the crop is made to come late. To avoid working off these roots, I begin in time and put in my fertilizer, 6 bags of 8-4-10 to the acre, and thoroughly work it into the soil from 3 to 6 inches from the plants, being careful to work the soil up close to the plants, but without smothering them. From then on I cultivate only to keep down the weeds, and never deep, especially near the plants. I never grow runners unless I specially need the plants for setting.

"I find that my best results are obtained from plants set the latter part of August. Spring is a good time to set the plants out, but they do not make such large berries, and require more cultivation on account of the weeds. The August-set plants, besides producing a crop in the Spring, require only two or three months cultivation.

"I use 400 pounds of raw bone meal worked into the bed two or three weeks before setting the plants, and get excellent results. There are other fertilizers probably just as good, but I find that this gives the best results for me. Of course, the amounts of fertilizer used throughout the season have to be varied according to the nature of the soil. Usually from 1,000 to 1,400 pounds per acre for the entire season is ample.

"I always use the hill system of planting and put my plants about 14 to 16 inches apart. In this way I get better, cleaner, and larger berries than I would in the matted rows.

"There is much room for the development of the strawberry industry. Our berries are often sent to market in bad order, soft, moldy, or 'leaky.' This could be avoided if we growers would refrain from using too much ammoniated fertilizers. For instance, we should never use nitrate of soda later than the middle of September. This gives the plants time to take it up before the cold weather sets in, otherwise the plants do not get the benefit of it until the following spring, and the consequence is that we have a soft berry and a poor shipper."

STRAWBERRY INSECTS.¹

By FRANKLIN SHERMAN, JR., Entomologist, State Department of Agriculture, Raleigh, N. C.

The strawberry crop has very few serious insect enemies in North Carolina, but we here mention those that have been complained of. The only one of which we have ever had much complaint is the Strawberry Weevil.

Strawberry Root-Louse.—This is a small dark plant-louse which infests the roots, sucking the sap from them, sometimes killing the plants in spots in the field. The remedy is (1) to avoid planting in ground known to be already infested until it has been in some other crop for a year or two; (2) secure plants which are free from them, grown in fields not infested; (3) if the plants are suspected, dip them for a few minutes in strong decoction made by boiling tobacco stems or leaves in water.

Strawberry Root-worms.—These are the larvæ (worm stage) of small dark-colored beetles. The beetles feed on leaves of strawberry and other plants; the larvæ feed on the roots or may bore through the crown. Remedy is to spray with arsenate of lead, 3 or 4 pounds to barrel of water, or Bordeaux mixture, applying well before the berries begin to color or after picking is over. So far as known, these are not usually a serious pest with us.

Saw-flies, Leaf-rollers, Caterpillars.—These may one and all feed to more or less extent on the foliage, but injuries by them have never been reported as serious in this State. Remedy would be to spray as already recommended for the Root-worms.

Strawberry Weevil.—This is by all odds the most important insect enemy of the strawberry in North Carolina, and therefore will be discussed in more detail. It has been the subject of some careful studies by us.

¹This article was prepared by Mr. Sherman at the request of the author of this BULLETIN, because many growers will desire to have some knowledge of the insect enemies of this crop. Inquiries or complaints about insects attacking strawberries in this State should be addressed to DIVISION OF ENTOMOLOGY, STATE DEPARTMENT OF AGRICULTURE, RALEIGH, N. C.

The adult parent weevil is less than $\frac{1}{8}$ inch long, chestnut-brown in color, and has on each side of the body a black spot which is surrounded by a gray border. From the head there projects a snout a little more than half as long as the body.

Weevils begin to appear in the fields about the last of March or first of April, showing up first along edges of woods, next to ditch banks, fence rows, briar patches, etc. There is no evidence that they are brought in with the pine straw. Within a week they become abundant, and may be found mating. The injury consists in cutting off the stem of the buds after laying the eggs in the bud itself. The larvæ (grub) which hatches from the egg feeds *on the pollen* in the cut and wilted bud. It reaches full growth in the same individual bud in which it is hatched, changes to a pupa, and emerges from the bud as a mature weevil about June 1st to 10th. Meanwhile the bud may still be attached to the plant, but is more likely to have fallen to the ground. After emerging as adults (June 1st to 10th) the adult weevils do not seem to mate, but begin to migrate to woods, hedges, ditch banks, etc., where they may be found on many kinds of flowers, including swamp magnolia, gallberry, blackberry, rose, etc. When laying eggs (April 5th to May 5th) they may be found feeding upon and even cutting the buds of rose, apple, blackberry, etc. There is evidence of only one generation each year, for the weevils emerging early in June were not found mating, but were evidently migrating from the strawberries to the woods, waste places, etc. Hence we believe that the same individual weevils which emerge in June are the ones which invade the fields the following spring and cut the berry buds.

The remedies to be applied are based on the points already brought out in the foregoing discussion, and the severity of damage must determine whether it is worth while to apply them.

As the larvæ (grub) in the bud *feeds on pollen*, the weevil is largely dependent on *pollen-bearing varieties*, and *varieties which bear no (or little) pollen are not so much hurt by weevil*. They will cut the buds of these to some extent, but not nearly so much as the pollen-bearing ones. We are aware that the favorite varieties among our commercial growers at the present are ones which bear pollen, and we are also aware that the pollen bearers are apt to be earlier and to fruit more profusely; but these facts must not blind the growers to the further important fact, that they are most subject to weevil. Hence the grower always has the final chance to escape much weevil injury by using imperfect-blooming varieties, and this is a sort of natural exemption which he can obtain in no other way. Whether the benefit will be great enough to amend for the lighter bearing is always a point on which some chance must be taken, and must be decided by the grower in the light of his experience with the weevil, and with the imperfect-blooming berries.

The second great point in control is this: Our observations showed that the cut and fallen buds gave forth weevils from about June 1st to

10th, but picking in the same fields (the variety was Thompson) was finished by May 20th to 25th. Here, then, was a space of two weeks when the weevils were developing in the fields, but when the plants themselves had finished their usefulness for the year. A burning over of the fields immediately after the last picking would certainly have destroyed many of the weevils, and if not too severe, would not hurt the plants. Growers who have done this have testified to the benefits. As a matter both of precaution and economy, part of the pine straw may be raked up and saved, the rest distributed evenly and burned. Mowing the tops before burning would make it easier, and if anything less dangerous to the plants.

Ditch banks and borders of berry fields which are overgrown with blackberries, dewberries, etc., should be kept burned off. The two most appropriate times for this would be about April 1st and June 10th, *i. e.*, just when the weevils begin to enter and as the next brood are leaving.

The cleaner the methods of cultivation the better.

An old field, picked for its last time, if it has been heavily infested with weevil, should be burned over, the more severely the better, and then plowed deeply, thus preventing the maturing of the weevils from the fallen buds. Coöperative effort among the growers of a community, all following the same remedial measures, will naturally be expected to give better results than when one acts alone. Yet here, as in most other problems, self-help is the first and most important requirement.

No method of spraying has yet been devised which will control the weevil satisfactorily, but spraying with arsenate of lead in Bordeaux mixture would certainly help against slight injury by Root-worms, Saw-flies, Leaf-rollers, and Caterpillars, and might lessen Weevil injury to some extent; also it will afford much protection against fungous diseases. Four pounds of arsenate of lead to a barrel of Bordeaux mixture is the strength we would recommend, making two applications: first, when leaves are out in spring, but before blooming; second, just after last picking. This last would not be needed if the fields are to be burned over.

FORMULA AND DIRECTIONS FOR POISONED BORDEAUX MIXTURE.

Stone lime (unslaked).....	4 pounds
Bluestone	3 pounds
Arsenate of lead	4 pounds
Water	50 gallons

Put the bluestone in a cloth and hang it in a tub or keg of water so that it is just below the surface. In this way it will dissolve much more rapidly than if thrown in so that it sinks to the bottom. Warm or hot water will dissolve it much more rapidly than cold. Put this to dissolve the evening before it is intended to spray and it will be dis-

solved by morning. This should be in a wooden receptacle. After the bluestone has dissolved add water to make 25 gallons (if there is not that amount already).

Slake the lime slowly (preferably with hot water), and when completely slaked add water to make 25 gallons. Keep this in a separate keg or barrel.

We now have 25 gallons of bluestone solution and 25 gallons of the lime solution. We now take equal parts of each of these solutions and pour them together into a third tub or barrel. Do not pour a bucketful of one into a half-barrel of the other, but mix them always in equal quantities. Thus we may take two water buckets and fill one with the lime solution and the other from the bluestone solution and then pour them both at the same time into the third barrel or keg. This little point of always mixing them in equal quantities results in a better mixture than when they are carelessly mixed, or when the whole mass of one solution is poured bodily into the whole mass of the other. Always stir the solution well before dipping out, so that the liquid you take out shall be fully charged with the ingredients of the solution.

Adding the Poison.—The arsenate of lead paste is first dissolved in just enough water to make it liquid and is then stirred into the Bordeaux mixture. It is then ready to apply.

Strain Before Using.—Before using, the mixture must be carefully strained through a cloth or fine wire gauze. Remember that all the spray must come out through the small hole in the end of the nozzle; therefore, to avoid clogging, strain carefully before using. Care in the thorough straining before spraying will pay for the trouble many times over. If one uses considerable quantities of the mixture, it is well to have a large funnel strainer made, fitted with two nettings, one of iron wire window-screening and the other with much finer gauze, preferably of brass. Having strained the poisoned mixture, it is ready to apply.

Arsenate of lead can be secured from, or through, a number of the larger drug stores in the State. If not to be had in your locality, it may be ordered from any of the following:

Thomsen Chemical Company, Baltimore, Md.

James A. Blanchard Company, New York, N. Y.

Fred. L. Lavenburg, 100 William Street, New York, N. Y.

Vreeland Chemical Company, 26 Dey Street, Hudson Terminal Building, New York, N. Y.

Niagara Sprayer Company, Middleport, N. Y.

Grasselli Chemical Company, Cleveland, Ohio.

Merrimac Chemical Company, 33 Broad Street, Boston, Mass.

Bowker Insecticide Company, New York, N. Y.

Powers-Weightman-Rosengarten Company, Philadelphia, Pa.

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REPORT OF SEED TESTS
FOR 1913

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LETTER OF TRANSMITTAL.

HON. W. A. GRAHAM,
Commissioner of Agriculture,
Raleigh, N. C.

RALEIGH, August 1, 1913.

SIR:—I have the honor to submit herewith the report on the analysis and germination of the agricultural and vegetable seed samples collected and analyzed in accordance with the North Carolina Pure Seed Act; also, samples submitted by interested individuals, from August 31, 1912, to July 15, 1913, and recommend its publication as the September BULLETIN of the Division of Agronomy and Botany of this Department.

Respectfully submitted,

J. L. BURGESS,
Agronomist and Botanist.

Approved for printing:

W. A. GRAHAM,
Commissioner of Agriculture.

REPORT OF SEED TESTS FOR 1913.

By J. L. BURGESS, AGRONOMIST AND BOTANIST.

INTRODUCTORY REMARKS.

Miss O. I. Tillman, the efficient botanist and seed analyst who was formerly in charge of the seed work, resigned her position with this Department June 1, 1913.

It is but fair to say that Miss Tillman not only aided the Commissioner of Agriculture in carrying out the requirements of the North Carolina Seed Law, but built up and equipped what is perhaps the best and most modern seed laboratory in the United States outside of Washington, D. C., and has thus left with us a monument to her genius and ability.

While here she trained two or three assistants, who became expert seed analysts. One of these, Miss Susie D. Allen, is still in the seed laboratory, and did a very large part of the work reported in the following pages.

Since most of the work of the seed laboratory is, strictly speaking, general agronomy work, the State Board of Agriculture, at its meeting in June, 1913, decided to combine the seed work with, and make it a part of, the work of the Agronomy Division, and thus eliminate unavoidable duplications.

GENERAL REMARKS.

According to the provisions of the North Carolina Pure Seed Act, seed samples have been collected and analyzed since the act went into effect, July 1, 1909. The present publication is the third report of seed tests made by this Department, and includes all samples received from August 31, 1912, to July 15, 1913. During that time 732 samples in all have been tested; total agricultural seed samples 534, samples from inspectors 398, samples from individuals 136. Two samples of grain mixture and one sample of ginseng seed were submitted for examination and germination test. Total samples for purity was 274, total samples for germination was 528. Germination tests were made of 195 samples of vegetable seeds, also 76 samples of tobacco seed were received and cleaned for farmers of the State.

SEED SHOULD BE TESTED AND THE VALUE KNOWN BEFORE PURCHASING.

The wisdom of having seed tested and of knowing the actual cost and value of the seed to be planted may be illustrated by the following

data. These samples were tested in the laboratory, and are fairly typical of the different grades of seed offered on the market at the same price.

Laboratory Number.	Kind of Seed.	Retail Price.	Actual Cost.	Actual Value.
1388.....	Crimson Clover.....	\$0.15 per pound...	\$0.16 per pound...	95 per cent.
2232.....	Crimson Clover.....	.15 per pound...	1.30 per pound...	11 per cent.
1427.....	Red Clover..... (No Dodder.)	.20 per pound...	.21 per pound...	96 per cent.
1409.....	Red Clover..... (Dodder present.)	.20 per pound...	.30 per pound...	48 per cent.
2108.....	Orchard Grass.....	.20 per pound...	.22 per pound...	73 per cent.
2024.....	Orchard Grass.....	.20 per pound...	.56 per pound...	25 per cent.
1534.....	Redtop.....	.20 per pound...	.22 per pound...	87 per cent.
2157.....	Redtop.....	.20 per pound...	.32 per pound...	37 per cent.

WEED SEEDS.

The three kinds of weed seeds of most frequent occurrence in the principal kinds of agricultural seeds tested are given below, the one found most frequently being listed first:

Alfalfa—Buckhorn, Green Foxtail, Lamb's Quarters.

Bluegrass, Kentucky—Field Sorrel, Buckhorn, Large Mouse-ear Chickweed.

Clover, Crimson—Black or Hop Medic, Wild Mustard, Slender Foxtail.

Clover, Red—Buckhorn, Curled Dock, Green Foxtail.

Clover, White—Field Sorrel, Black or Hop Medic, Large Mouse-ear Chickweed.

Grass, Orchard—Field Sorrel, Buckhorn, Cheat.

Oats—Cheat, Corn Cockle, Darnel.

Redtop—Yarrow, Rugel's Plantain, Woolly Panicum.

Out of 51 samples of Red Clover seed tested, Dodder was found to occur in 21 samples, and in no samples of Alfalfa out of 8 samples tested.

According to section 5 of the North Carolina Seed Act, the occurrence of the following weed seeds in agricultural seeds to be used for planting is considered unlawful: Wild Onion or Garlic (*Allium vineale* L. and *A. Canadense* L.), Wild Mustard (*Brassica arvensis* (L.) Ktz.), Couch-grass (*Agropyron repens* (L.) Beauv.), Canada Thistle (*Carduus arvensis* (L.) Robs.), Wild Oat (*Avena fatua* L.), Clover Dodder (*Cuscuta Epithymum* Murr), Corn Cockle (*Agrostemma Githago* L.), Cheat (*Bromus secalinus* L.), Dog Fennel (*Eupatorium capillifolium* (Lam.) Small.), Wild Carrot (*Daucus Carota* L.).

Following are given the standards for purity and germination required by the seed act:

	<i>Purity.</i>	<i>Germination.</i>
Alfalfa.....	96	80
Barley.....	98	90
Bluegrass, Canada.....	90	45
Bluegrass, Kentucky.....	80	45
Brome, awnless.....	90	75
Clover, alsike.....	96	75
Buckwheat.....	96	90
Clover, crimson.....	98	85
Clover, red.....	92	80
Clover, white.....	90	75
Corn, field.....	99	94
Corn, sweet.....	99	75
Fescue, meadow.....	95	85
Flax.....	96	89
Millet, pearl.....	99	65
Millet, common.....	90	85
Millet, hog.....	90	85
Oats.....	98	90
Oatgrass, tall.....	72	70
Orchard grass.....	70	70
Rape.....	99	90
Redtop.....	90	70
Rye.....	98	90
Rye-grass, perennial.....	96	90
Rye-grass, Italian.....	95	80
Sorghum.....	96	80
Sorghum for fodder.....	90	60
Timothy.....	96	85
Wheat.....	98	90

CLEANING TOBACCO SEED.

Last year this Division began a new line of work, that of cleaning tobacco seed for farmers of the State. Most gratifying reports have been received from persons for whom seed was cleaned. The following shows the trend of opinion among the tobacco farmers in regard to this new line of work:

"The tobacco seed I had cleaned by the Department of Agriculture last year I gave to one hundred and twenty-five farmers, and find them all pleased with the seed. I want to say that I find a great difference in the results where seeds are cleaned.

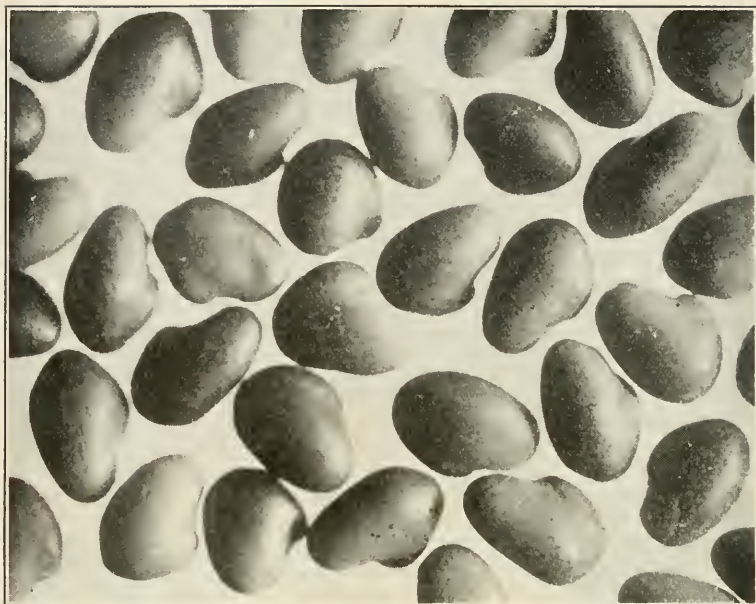
"First. I get stronger plants on beds, and have no small, inferior plants.

"Second. The tobacco lives better; not having to replant, grows evenly, not having any late, inferior tobacco to contend with.

"Third. It matures uniformly, making the housing of the crop easier.

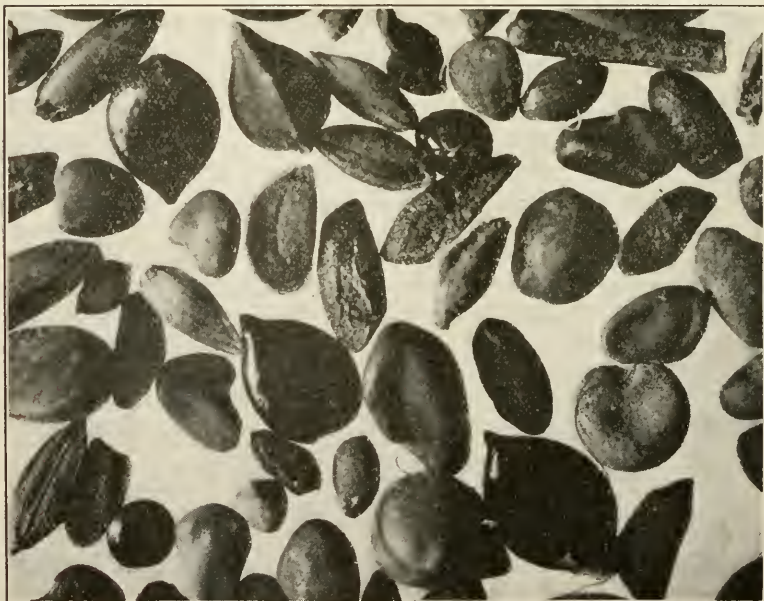
"Fourth. I get a better grade of tobacco, heavier and more uniform.

"Fifth. Better plants, regular growth, uniform maturity, heavier crops, and better prices I find to be the result of cleaned seed, with which I am much pleased. I am sending you to-day my seed for this year to be cleaned."



RED CLOVER SEED (PURE).

(After U. S. Dept. of Agr.)



RED CLOVER SEED (WEEDY).

(After U. S. Dept. of Agr.)

The planting of clean seed of high vitality is of such importance that it is hoped the tobacco farmers of the State will take advantage of the opportunity the Department offers and have all of their seed cleaned. This work can be done more efficiently by the Department than by the farmers, as the Seed Laboratory has special apparatus for doing this work. Several times the quantity of seed desired for sowing should be sent to insure a sufficient quantity of cleaned seed. The seed should be sent some time before it is wanted. The Department makes no charge for cleaning tobacco seed.

HOW TO SEND SEED SAMPLES FOR TESTING.

Of the smaller seeds, such as the grasses and clovers, about three or four tablespoonfuls is a sufficient amount to send for testing. Of the larger seeds, as corn and oats, about a cupful is necessary. The following information should accompany all samples: Name and address of wholesale and retail dealer, retail price, and name and address of sender. Samples should be securely wrapped and addressed to

THE NORTH CAROLINA SEED LABORATORY,
DEPARTMENT OF AGRICULTURE,
RALEIGH, N. C.

AGRICULTURAL SEEDS FROM THE FOLLOWING 50 WHOLESALE DEALERS WERE COLLECTED FROM THE NORTH CAROLINA MARKET AND TESTED.

<i>Dealer.</i>	<i>Location.</i>
Adams Grain and Provision Co.....	Charlotte, N. C.
Adams Grain and Provision Co.....	Richmond, Va.
Armfield & Co.....	Fayetteville, N. C.
Barnard, W. W., & Co.....	Chicago, Ill.
Bass, Amos K.....	Caddo, Okla.
Beveridge, S. T., & Co.....	Richmond, Va.
Bolgiano, J., & Son.....	Baltimore, Md.
Brent, C. S.....	Lexington, Ky.
Brooks, J. W.....	Wilmington, N. C.
Brown Grain Co.....	McKinley, Texas.
Buffington, John J., & Co.....	Baltimore, Md.
Buist, Robert, Seed Co.....	Philadelphia, Pa.
Carter, Venable & Co.....	Richmond, Va.
City Hay and Grain Co.....	Norfolk, Va.
Cooper, W. B.....	Wilmington, N. C.
Diggs & Beadles.....	Richmond, Va.
Dixon & Etheridge.....	Goldsboro, N. C.
Dupree Commission Co.....	Waco, Texas.
Ellison, W. W., Son & Co.....	Waynesboro, Va.
Elm City Lumber Co.....	New Bern, N. C.
Erly & Daniel Co.....	Cincinnati, Ohio.
Gillet Grain Co.....	Nashville, Tenn.
Gore, D. L., & Co.....	Wilmington, N. C.

<i>Dealer.</i>	<i>Location.</i>
Hardin, Hamilton & Lewman.....	Louisville, Ky.
Hardy, E.....	Warsaw, N. C.
Harris, A. E., Grain Co.....	St. Louis, Mo.
Harsh, Alex. C., & Co.....	Nashville, Tenn.
Hickory Seed Co.....	Hickory, N. C.
Hines, E. G.....	Goldsboro, N. C.
Jacot & Mullen.....	New York, N. Y.
Louisville Seed Co.....	Louisville, Ky.
Marsh Milling and Grain Co.....	Madill, Okla.
Mayo Milling Co.....	Richmond, Va.
McNair & Pearsall.....	Wilmington, N. C.
National Seed Co.....	Louisville, Ky.
Nungesser-Dickinson Seed Co.....	New York, N. Y.
Parsons & Hardison.....	Wadesboro, N. C.
Pearsall & Co.....	Wilmington, N. C.
Perry Mills Co.....	Perry, Okla.
Pittman & Harrison.....	Sherman, Texas.
Rice, J. B., Seed Co.....	Cambridge, N. Y.
Richardson, W. F., Jr., & Co.....	Richmond, Va.
Roper & Co.....	Petersburg, Va.
Savage, N. R., & Son.....	Richmond, Va.
Simpson, W. A., & Co.....	Baltimore, Md.
Southern Distributing Co.....	Norfolk, Va.
Suffolk Feed and Fuel Co.....	Suffolk, Va.
Tait, George, & Sons.....	Norfolk, Va.
Tennessee Grain Co.....	Nashville, Tenn.
Wood, T. W., & Sons.....	Richmond, Va.

ADDRESSES AND NAMES OF 206 RETAIL DEALERS IN 85 TOWNS,
FROM WHOM AGRICULTURAL SEED SAMPLES WERE COLLECTED
AND TESTED.

<i>Location.</i>	<i>Dealer.</i>
Aberdeen.....	Standard Store Co.
Ahoskie.....	J. T. Williams & Bro.
Albemarle.....	Hill & Son.
do.....	Morrow Bros. & Heath Co.
Apex.....	Apex Mule and Supply Co.
Asheville.....	Grant's Pharmacy.
do.....	Slayden, Fakes & Co.
Ayden.....	R. C. Cannon & Sons.
do.....	J. J. Edwards & Son.
do.....	J. R. Smith & Bro.
Beaufort.....	M. R. Springle.
Benson.....	Parrish-Godwin Co.
Burgaw.....	C. Harrell & Son.
Cary.....	F. R. Gray & Bro.
Chadbourn.....	Brown Mercantile Co.
do.....	Chadbourn Grocery Co.
Charlotte.....	Davidson & Wolfe.
do.....	Farmers Supply Co.
do.....	W. L. Hond & Co.
do.....	Johnston Bros.
Clayton.....	Clayton Drug Co.
do.....	Clayton Fruit Co.
Clinton.....	D. M. Patrick & Co.
do.....	J. C. Peterson.
do.....	B. F. Powell.
Concord.....	Cline & Moose.

<i>Location.</i>	<i>Dealer.</i>
Dunn.....	George M. Floyd & Co.
Durham.....	Haywood & Boone.
do.....	C. E. King & Sons.
do.....	J. T. Rogers & Co.
Edenton.....	Farmers Supply Co.
do.....	V. D. Jones.
Elizabeth City.....	T. P. Nash.
do.....	Spencer & Hollowell Co.
do.....	W. S. White & Co.
Elm City.....	J. L. Bailey.
do.....	Sharpe & Farmer.
do.....	R. S. Wells.
Enfield.....	B. E. Bobbitt & Co.
do.....	Curtis-Parson Co.
Fair Bluff.....	Powell Supply Co.
Fayetteville.....	Adams Grain and Provision Co.
do.....	Armfield & Co.
do.....	A. S. Huske.
Franklinton.....	Ballard-Cheatham Co.
do.....	Franklin Grocery Co.
do.....	McGhee-Joyner Co.
do.....	W. L. McGhee.
do.....	Sterling Cotton Mills.
do.....	Whedbee & Morris.
do.....	C. S. Williams.
Fremont.....	George D. Best & Son.
do.....	J. D. Davis.
do.....	Dees & Whitley.
do.....	Hooks, Bellame & Co.
do.....	Hooks Bros.
do.....	N. R. Whitley.
Gastonia.....	W. T. Adams & Co.
do.....	Gaston Seed and Provision Co.
Goldsboro.....	M. J. Best & Sons.
do.....	George E. Daniels.
do.....	Deans & Moye Co.
do.....	Z. M. L. Jeffreys.
do.....	W. C. Moye & Son.
do.....	H. Neil & Bro.
do.....	C. D. Taylor & Co.
do.....	B. G. Thompson & Son.
do.....	T. N. Waters & Bro.
do.....	Williams Drug Store.
Goldston.....	T. M. Bynum.
Greensboro.....	C. Scott & Co.
Greenville.....	F. V. Johnston.
do.....	J. L. Stashey.
Halifax.....	N. L. Steadman & Co.
Henderson.....	Beacon Supply Co.
do.....	Parham Supply Co.
do.....	W. W. Parker.
do.....	G. A. Rose & Co.
do.....	Southern Grocery Co.
do.....	White-Hight Co.
Hendersonville.....	Byer Bros.
do.....	J. O. Houston & Son.
do.....	Hunter's Pharmacy.
Hertford.....	M. H. White & Co.
Jackson.....	R. W. Fleetwood.
Kinston.....	Copeland Bros.
do.....	Ray Dawson.
do.....	H. C. Edwards.
do.....	P. A. Hooker.

<i>Location.</i>	<i>Dealer.</i>
LaGrange	R. G. Creek & Co.
do.	W. P. Hardy & Co.
do.	E. S. Mewborn.
do.	T. W. Pace.
do.	Simeon Wooten.
Laurinburg	Planters Trading Co.
Liberty	C. H. Staley.
do.	John R. Stuart.
Littleton	S. J. Stallings.
Louisburg	B. G. Hicks.
do.	Hill Live Stock Co.
do.	McKinne Bros.
do.	P. A. Reavis & Co.
Lumberton	L. H. Caldwell.
do.	M. W. Floyd.
Madison	City Grocery Co.
do.	Madison Grocery Co.
Maxton	J. W. Carter.
do.	Currie-Patterson Co.
do.	W. J. Pace.
Monroe	F. B. Ashcraft.
do.	M. L. Flow.
do.	Latham & Richardson.
do.	L. N. Presson & Co.
Mount Airy	Mount Airy Feed Store.
Mount Gilead	Mount Gilead Store Co.
Mount Olive	Y. H. Knowles Co.
do.	E. J. Martin, Son & Co.
Mount Tabor	Tabor Supply Co.
Murphy	R. H. Hyatt & Co.
Nashville	Harrington-Bissett Co.
New Bern	Burnes & Co.
do.	Dixon & Etheridge.
do.	Elm City Lumber Co.
do.	C. B. Hill.
do.	C. L. Spencer.
do.	S. W. Willis.
Norwood	Harris-McAuley Co.
Norwood	Sinclair-Mercantile Co.
Oxford	J. D. Brooks.
do.	J. G. Hall.
do.	Horner Bros.
do.	Howell Bros.
do.	Long, Winston & Co.
Randleman	L. W. Lineberry & Co.
Red Springs	Garrett & McNeill.
do.	Red Springs Drug Co.
do.	Townsend Pharmacy.
Reidsville	Hutchinson Bros.
Roanoke Rapids	E. B. Glover.
Rockingham	Baldwin Grocery Co.
do.	E. N. Covington & Co.
do.	A. W. Porter Co.
do.	Watson & King Co.
Rocky Mount	George J. Hales & Bro.
do.	Matthews, Weeks & Co.
Rowland	A. L. Bullock.
do.	Rowland Grocery Co.
do.	John W. Ward.
Sanford	E. D. Noll & Co.
do.	Wilkins, Ricks & Co.

<i>Location.</i>	<i>Dealer.</i>
Scotland Neck.....	Burrows-Pittman-Wheeler Co.
do.....	Edwards & Co.
do.....	M. Hoffman & Bro.
do.....	R. C. Josey & Co.
Selma.....	Selma Supply Co.
Siler City.....	C. L. Brown.
Smithfield.....	Austin-Stephenson Co.
do.....	Carter-Underwood Co.
do.....	W. M. Sanders.
Star.....	J. F. Burns.
Tabor.....	Enterprise Grocery Co.
Tarboro.....	W. S. Clark & Son.
do.....	Josey Bros. & Co.
do.....	W. H. McNair Drug Co.
do.....	R. B. Peters Grocery Co.
do.....	Roberson-Ruffin Co.
Troy.....	A. J. Burrow.
do.....	Vance & Tomlinson.
Vineland.....	Nealy & Co.
do.....	Powell & Co.
Wadesboro.....	Fox & Lyon.
do.....	W. N. Jeans.
do.....	Leak & Marshall.
do.....	H. W. Little & Co.
do.....	Parsons Drug Co.
Warren Plains.....	John H. Fleming.
Warrenton.....	Allen-Fleming Co.
do.....	Burroughs Grocery Co.
do.....	Rogers & Burwell.
Warsaw.....	Hobbs & Russ.
Washington.....	A. J. Cox & Co.
do.....	J. Havens.
do.....	E. K. Willis.
Waxhaw.....	Harris Bros.
do.....	Wolfe Drug Co.
Weldon.....	L. J. Moore.
Whitakers.....	Green & Moore.
do.....	J. C. Moore & Bros. Co.
do.....	O. J. Moore & Co.
Whiteville.....	Columbus Trading Co.
Wilkesboro, North.....	C. Call.
Williamston.....	Anderson-Crawford Co.
do.....	W. H. Guirkin.
do.....	George W. Sullivan.
Wilmington.....	R. R. Bellamy.
do.....	W. B. Cooper & Co.
do.....	D. L. Gore & Co.
do.....	Hall & Pearsall.
do.....	W. J. Kirkham & Co.
do.....	B. F. Mitchell.
Wilson.....	Hadley-Harriss Co.
do.....	Doane Herring.
do.....	Ruffin-High Co.
do.....	Tomlinson & Co.
do.....	P. L. Woodard & Co.
Winston-Salem.....	Farmers Union Agency Co.

VEGETABLE SEEDS FROM THE FOLLOWING TWELVE WHOLESALE DEALERS WERE COLLECTED FROM THE NORTH CAROLINA MARKET AND TESTED.

<i>Dealer.</i>	<i>Location.</i>
Barnard, W. W., & Co.	Chicago, Ill.
Bolgiano, J., & Son	Baltimore, Md.
Buist, Robert, Co.	Philadelphia, Pa.
Crosman Bros.	Rochester, N. Y.
Diggs & Beadles	Richmond, Va.
Ferry, D. M., & Co.	Detroit, Mich.
Lake Shore Seed Co.	Dunkirk, N. Y.
Landreth, D., Seed Co.	Bristol, Pa.
Leonard Seed Co.	Chicago, Ill.
May, L. L., & Co.	St. Paul, Minn.
Rice, J. B., Seed Co.	Cambridge, N. Y.
Wood, T. W., & Sons	Richmond, Va.

ADDRESSES AND NAMES OF 110 RETAIL DEALERS IN 66 TOWNS, FROM WHOM VEGETABLE SEED SAMPLES WERE COLLECTED AND TESTED.

<i>Location.</i>	<i>Dealer.</i>
Aberdeen	Standard Store Co.
Ahoskie	S. J. Dilday.
Albemarle	Shankle-Snuggs Co.
Asheville	Grant's Pharmacy.
Beaufort	Beaufort Drug Co.
do	Potter Bros.
Benson	W. F. Smith.
Boardman	Butters Lumber Co.
Charlotte	Charlotte Drug Co.
do	Reese & Alexander, Inc.
do	Woodall & Sheppard.
Clinton	H. S. Southerland.
Concord	Cabarrus Drug Co.
do	Cook & Harris.
do	Davis Drug Co.
do	Dove-Bost Co.
do	Gibson Drug Co.
Dunn	Robinson Bros.
Edenton	J. A. Mitchener.
do	W. S. White.
Elizabeth City	W. S. White & Co.
Elm City	J. L. Bailey.
Enfield	Harrison & Hill Drug Co.
Fayetteville	A. J. Cook & Co.
do	J. B. Fields.
do	A. S. Huske.
Franklinton	Franklin Grocery Co.
Gastonia	Adams Drug Co.
do	Gaston Seed and Provision Co.
do	Kennedy's Drug Co.
do	Torrence Drug Co.
Goldsboro	Z. M. L. Jeffreys
do	T. N. Waters & Bro.
Greenville	F. V. Johnston.
do	J. L. Stashey.

<i>Location.</i>	<i>Dealer.</i>
Hamlet.....	Hamlet Pharmacy.
do.....	Earle Morrow Drug Co.
Henderson.....	W. W. Parker.
Hertford.....	W. S. Blanchard & Son.
do.....	Divers & Roper.
do.....	Watson & Winslow.
Jackson.....	Taylor & Cowan.
Jacksonville.....	G. T. Walton & Son.
Kings Mountain.....	Barnes-Finger Drug Co.
do.....	Kiser & Mauney.
Kinston.....	Henry Dunn.
do.....	Temple Drug Co.
LaGrange.....	E. S. Mewborn.
Laurinburg.....	J. T. Fields.
Lincolnton.....	Lawnings Drug Store.
Louisburg.....	Aycock Drug Co.
do.....	Beasley-Austin Drug Co.
Lumberton.....	L. H. Caldwell.
Madison.....	Madison Grocery Co.
Maxton.....	E. L. Burns.
do.....	A. L. Jones.
Monroe.....	English Drug Co.
do.....	Latham & Richardson.
do.....	Dr. S. J. Welsh & Son.
Morehead City.....	J. B. Morton.
Mount Airy.....	Mount Airy Feed Store.
do.....	The Peoples Drug Store.
do.....	I. W. West Drug Co.
Mount Olive.....	Martin & Price Co.
Nashville.....	J. D. Winstead & Son.
New Bern.....	J. F. Clark.
do.....	B. B. Davenport.
Norwood.....	Hart Drug Co.
Oxford.....	Hamilton Drug Co.
do.....	J. T. Sizemore.
Plymouth.....	Alexander & Blount.
do.....	Tom L. Smith.
do.....	Henry L. Spruill.
Proctorville.....	Barnes Bros.
Reidsville.....	Fetzer & Tucker.
Roanoke Rapids.....	Wells Dilery.
Robersonville.....	Roberson, Cary & Co.
do.....	J. H. Roberson & Co.
Rockingham.....	Eagle Pharmacy.
do.....	L. G. Fox.
Rocky Mount.....	Fitzgerald Drug Co.
Rocky Mount.....	Kyser's Drug Store.
Roseboro.....	D. W. Tart.
Salisbury.....	J. W. McPherson & Co.
Scotland Neck.....	G. T. Whitehead & Co.
Selma.....	Selma Drug Co.
Smithfield.....	W. M. Sanders.
Tarboro.....	R. E. L. Cook Drug Co.
do.....	Robinson-Ruffin Co.
Wadesboro.....	Fox & Lyon.
do.....	Parsons Drug Co.
do.....	V. F. Tarlton.
Walnut Cove.....	Golden Rule Drug Co.
Warrenton.....	Burroughs Grocery Co.
Washington.....	W. A. & J. G. Blount.
do.....	E. K. Willis.
Weldon.....	E. Clarke.

<i>Location.</i>	<i>Dealer.</i>
Whitakers.....	Whitakers Pharmacy.
Williamston.....	Theo. Roberson & Co.
Wilmington.....	R. R. Bellamy.
do.....	W. J. Kirkham & Co.
Wilson.....	Ruffin-High Co.
Winston-Salem.....	J. Emra Cox.
do.....	Eford Bros.
do.....	Farmers Trade House Co.
do.....	E. W. O'Hanlon & Co.
do.....	J. G. Messick.
do.....	Owens Drug Co.
do.....	P. A. Thompson.
Youngsville.....	E. T. Alford.

VEGETABLE SEED SAMPLES WERE COLLECTED IN THE FOLLOWING
45 COUNTIES.

Anson,	Halifax,	Richmond,
Beaufort,	Hertford,	Robeson,
Buncombe,	Johnston,	Rockingham,
Cabarrus,	Lenoir,	Rowan,
Carteret,	Lincoln,	Sampson,
Chowan,	Martin,	Scotland,
Columbus,	Mecklenburg,	Stanly,
Craven,	Moore,	Stokes,
Cumberland,	Nash,	Surry,
Edgecombe,	New Hanover,	Union,
Forsyth,	Northampton,	Vance,
Franklin,	Onslow,	Warren,
Gaston,	Pasquotank,	Washington,
Granville,	Perquimans,	Wayne,
Harnett,	Pitt,	Wilson.

AGRICULTURAL SEED SAMPLES WERE COLLECTED IN THE
FOLLOWING 52 COUNTIES.

Anson,	Granville,	Perquimans,
Beaufort,	Guilford,	Pitt,
Buncombe,	Halifax,	Randolph,
Cabarrus,	Harnett,	Richmond,
Carteret,	Henderson,	Robeson,
Chatham,	Hertford,	Rockingham,
Cherokee,	Johnston,	Sampson,
Chowan,	Lee,	Scotland,
Columbus,	Lenoir,	Stanly,
Craven,	Martin,	Surry,
Cumberland,	Mecklenburg,	Union,
Duplin,	Montgomery,	Vance,
Durham,	Moore,	Wake,
Edgecombe,	Nash,	Warren,
Forsyth,	New Hanover,	Wayne,
Franklin,	Northampton,	Wilkes,
Gaston,	Pasquotank,	Wilson.
	Pender,	

TABLE I.—RESULTS OF TESTS OF 25 KINDS OF AGRICULTURAL SEEDS, 398 SAMPLES IN ALL, COLLECTED BY INSPECTORS FROM SEPTEMBER 1, 1912, TO JULY 15, 1913.

Laboratory Number.	Kind of Seed and Name of Unlawful Seed Present.	Wholesale Dealer.	Retail Dealer.	Per Cent of Pure Seed.	Per Cent of Inert Matter.	Per Cent of Foreign Seed.	Per Cent of Germination.
2629	ALFALFA	Diggs & Beadles, Richmond, Va.	C. E. King & Sons, Durham, N. C.	*94.90	.23	4.87	†63.5
2598	do	T. W. Wood & Sons, Richmond, Va.	L. H. Caldwell, Lumberton, N. C.	99.55	.43	.02	84.0
2457	do	do	Farmers Union Agency Co., Winston-Salem, N. C.	98.96	.73	.31	†79.0
2802	do	do	Hunter's Pharmacy, Hendersonville, N. C.	99.63	.31	.06	82.5
2473	do	do	F. V. Johnston, Greenville, N. C.	98.87	.81	.32	†73.0
2549	do	do	B. F. Powell, Clinton, N. C.	98.35	1.26	.39	†70.5
2478	BARLEY (Cheat.)	S. T. Beveridge & Co., Richmond, Va.	J. Havens, Washington, N. C.	98.40	1.03	.57	94.0
2600	do (Wild onion, Corn cockle, Cheat.)	N. R. Savage & Son, Richmond, Va.	Parsons Drug Co., Wadesboro, N. C.	*96.91	1.86	1.23	96.5
2641	do (Cheat.)	T. W. Wood & Sons, Richmond, Va.	C. S. Brown, Siler City, N. C.	99.35	.61	.04	98.5
2453	BLUEGRASS, KENTUCKY (Cheat.)	J. Bolgiano & Son, Baltimore, Md.	Haywood & Boone, Durham, N. C.	38.06	42.78	19.76	46.0
2558	do (Canada thistle.)	C. S. Brent, Lexington, Ky.	C. Scott & Co., Greensboro, N. C.	*71.89	27.36	.75	80.5
2673	do	Hardin, Hamilton & Lewman, Louisville, Ky.	Byers Bros., Hendersonville, N. C.	*69.36	30.01	.63	50.5
2519	do	do	Davidson & Wolfe, Charlotte, N. C.	*70.51	28.86	.63	†28.5
2675	do	do	Grant Pharmacy, Asheville, N. C.	82.22	17.11	.67	47.0
2676	do	Louisville Seed Co., Louisville, Ky.	R. H. Hyatt & Co., Murphy, N. C.	*70.39	29.32	.29	†38.0
2674	do	National Seed Co., Louisville, Ky.	Slayden, Fakes & Co., Asheville, N. C.	*75.27	24.54	.19	45.5
2557	do	N. R. Savage & Son, Richmond, Va.	Hutcheson Bros., Reidsville, N. C.	*74.66	24.91	.43	60.5
2519	do	T. W. Wood & Sons, Richmond, Va.	W. T. Adams & Co., Gastonia, N. C.	*75.31	23.14	1.55	65.0
2653	do	do	Cline & Moose, Concord, N. C.	*75.71	22.36	1.93	64.5
2454	do	do	Farmers Union Agency Co., Winston-Salem, N. C.	*76.26	23.36	.38	74.0

TABLE I.—RESULTS OF TESTS OF 25 KINDS OF AGRICULTURAL SEEDS, 398 SAMPLES IN ALL, COLLECTED BY INSPECTORS FROM
SEPTEMBER 1, 1912, TO JULY 15, 1913—CONTINUED.

Laboratory Number.	Kind of Seed and Name of Unlawful Seed Present.	Wholesale Dealer.	Retail Dealer.	Per Cent of Pure Seed.	Per Cent of Inert Matter.	Per Cent of Foreign Seed.	Per Cent of Germination.
2671	BLUEGRASS, KENTUCKY (<i>Canada thistle</i> .)	T. W. Wood & Sons, Richmond, Va.	Gaston, Seed and Provision Co., Gaston, N. C.	*71.89	26.71	1.40	75.0
2697	do	do	Wilkins, Ricks & Co., Sanford, N. C.	*74.37	25.40	.23	63.0
2672	do	Not known from whom bought	Farmers Union Agency Co., Winston-Salem, N. C.	79.84	19.98	.18	71.5
2448	CHUFAS	E. Hardy, Warsaw, N. C.	Hobbs & Russ, Warsaw, N. C.				19.5
2773	CLOVER, ALSIKE	T. W. Wood & Sons, Richmond, Va.	Farmers Union Agency Co., Winston-Salem, N. C.	96.11	.58	3.31	81.0
2806	do	T. W. Wood & Sons, Richmond, Va.	Grant's Pharmacy, Asheville, N. C.	98.48	.42	1.10	77.3
2459	CLOVER, BUR	Diggs & Beadles, Richmond, Va.	Farmers Union Agency Co., Winston-Salem, N. C.	99.23	.47	.30	80.5
2543	CLOVER, CRIMSON	S. T. Beveridge & Co., Richmond, Va.	Burnes & Co., New Bern, N. C.	*96.81	2.91	.28	90.5
2463	do (Wild mustard.)	do	J. Havens, Washington, N. C.	*96.59	2.88	.53	92.5
2544	do (Wild mustard.)	do	E. J. Martin, Son & Co., Mount Olive, N. C.	*96.14	3.27	.59	91.0
2545	do (Wild mustard.)	do	Tomlinson & Co., Wilson, N. C.	*96.65	2.66	.69	93.0
2479	do (Wild mustard.)	do	Wheeler & Morris, Franklinton, N. C.	*96.58	2.90	.52	99.0
2616	do	J. Bolgiano & Son, Baltimore, Md.	Haywood & Boone, Durham, N. C.	99.58	.32	.10	†81.0
2542	do	do	Charles B. Hill, New Bern, N. C.	99.05	.33	.62	85.0
2602	do (Wild mustard.)	Cartier, Venable & Co., Richmond, Va.	Apex Mule and Supply Co., Apex, N. C.	98.47	.91	.62	†50.0
2496	do (Wild mustard.)	do	White-Hight Co., Henderson, N. C.	97.52	1.79	.69	96.0
2451	do (Wild mustard.)	Diggs & Beadles, Richmond, Va.	Farmers Union Agency Co., Winston-Salem, N. C.	*95.95	3.37	.08	97.5
2612	do	do	J. G. Hall, Oxford, N. C.	98.05	1.68	.27	93.5

2452	do	do	Haywood & Boone, Durham, N. C.	*96.59	2.86	.55	93.0
2613	do	(Wild mustard.)	C. E. King & Sons, Durham, N. C.	*97.30	2.19	.51	92.5
2488	do	(Wild mustard, Corn cockle.)	McKinne Bros., Louisville, N. C.	*96.85	2.64	.51	96.0
2491	do	do	do	97.80	1.83	.37	97.5
2489	do	do	Dr. W. W. Parker, Henderson, N. C.	97.68	2.04	.28	97.5
2490	do	(Wild mustard.)	Whedbee & Morris, Franklinton, N. C.	*96.83	2.51	.66	96.0
2793	do	do	Byers Bros., Hendersonville, N. C.	98.43	1.36	.21	85.0
2548	do	(Wild mustard.)	Clayton Drug Co., Clayton, N. C.	98.21	1.01	.78	†65.0
2546	do	do	Hadley-Harriss Co., Wilson, N. C.	98.67	.87	.46	†80.0
2483	do	(Corn cockle, Wild mustard.)	Hill Live Stock Co., Louisville, N. C.	*96.18	3.34	.48	93.5
2487	do	(Wild mustard.)	P. A. Reavis Co., Louisville, N. C.	98.64	.77	.59	†53.0
2486	do	do	Rogers & Burwell, Warrenton, N. C.	98.96	.72	.32	87.5
2485	do	(Wild mustard.)	White-Hight Co., Henderson, N. C.	*97.29	2.19	.52	96.5
2484	do	(Wild mustard.)	C. S. Williams, Franklinton, N. C.	*92.92	5.81	1.27	94.5
2494	do	do	Ballard-Cleatham Co., Franklinton, N. C.	*95.65	4.12	.23	96.0
2614	do	(Wild mustard.)	J. D. Brooks, Oxford, N. C.	*97.44	1.85	.71	90.5
2514	do	(Wild mustard.)	Davidson & Wolfe, Charlotte, N. C.	*96.52	1.57	1.91	92.0
2513	do	do	do	*97.27	1.90	.83	97.0
2460	do	(Wild mustard.)	Edwards & Co., Scotland Neck, N. C.	98.42	.67	.91	†60.0
2615	do	do	Horner Bros. Co., Oxford, N. C.	*95.91	3.59	.50	96.0
2515	do	(Wild mustard.)	Johnston Bros., Charlotte, N. C.	*96.51	2.06	1.43	97.5
2492	do	(Wild mustard.)	McKinne Bros., Louisville, N. C.	97.77	2.07	.16	96.0
2587	do	do	Parsons Drug Co., Wadesboro, N. C.	*96.43	3.15	.42	92.0
2547	do	(Wild mustard.)	W. M. Sanders, Smithfield, N. C.	*96.92	2.39	.69	95.0
2495	do	(Wild mustard.)	Southern Grocery Co., Henderson, N. C.	97.76	1.36	.88	96.5
2493	do	(Wild mustard.)	do	*97.22	2.35	.43	94.0

TABLE I.—RESULTS OF TESTS OF 25 KINDS OF AGRICULTURAL SEEDS, 398 SAMPLES IN ALL, COLLECTED BY INSPECTORS FROM SEPTEMBER 1, 1912, TO JULY 15, 1913—CONTINUED.

Laboratory Number.	Kind of Seed and Name of Unlawful Seed Present.	Wholesale Dealer.	Retail Dealer.	Pure Seed. Per Cent of	Inert Matter. Per Cent of	Foreign Seed. Per Cent of	Germination. Per Cent of
2610	CLOVER, CRIMSON.	T. W. Wood & Sons, Richmond, Va.	F. B. Ashcraft, Monroe, N. C.	99.40	.30	.30	88.5
2588	do.	do.	L. H. Caldwell, Lumberton, N. C.	*97.35	2.39	.26	92.5
2589	do.	do.	Fox & Lyon, Wadesboro, N. C.	98.10	1.59	.31	87.5
2603	do. (Wild mustard.)	do.	F. R. Gray & Bro., Cary, N. C.	*93.19	3.29	3.52	96.5
2604	do. (Wild mustard.)	do.	do.	98.25	1.05	.70	88.5
2611	do.	do.	J. G. Hall, Oxford, N. C.	98.53	1.18	.29	93.0
2482	do.	do.	Hill Live Stock Co., Louisburg, N. C.	*96.58	2.81	.61	96.0
2461	do.	do.	F. V. Johnston, Greenville, N. C.	*96.15	2.16	1.69	78.5
2462	do.	do.	W. H. McNair Drug Co., Tarboro, N. C.	*97.01	1.45	1.54	73.5
2564	do.	do.	Morrow Bros. & Heath Co., Albemarle, N. C.	*96.99	2.41	.60	85.0
2609	do. (Wild mustard.)	do.	do.	*96.50	2.96	.54	95.5
2590	do. (Wild mustard.)	do.	E. D. Noll Co., Sanford, N. C.	*97.07	1.41	1.52	85.5
2608	do.	do.	J. T. Rogers & Co., Durham, N. C.	98.97	.36	.67	94.5
2480	do.	do.	G. A. Rose & Co., Henderson, N. C.	*97.36	2.20	.44	91.5
2541	do. (Wild mustard.)	do.	C. L. Spencer, New Bern, N. C.	97.66	1.21	1.10	76.0
2481	do. (Wild mustard.)	do.	Sterling Cotton Mill, Franklinton, N. C.	98.00	1.88	.12	93.5
2643	do. (Wild mustard.)	do.	Vance & Tomlinson, Troy, N. C.	*96.87	2.85	.28	94.0
2645	CLOVER, RED	S. T. Beveridge & Co., Richmond, Va.	L. W. Lineberry & Co., Randleman, N. C.	97.44	1.55	1.01	87.0
2779	do. (Dodder.)	J. Bolgiano & Son, Baltimore, Md.	City Grocery Co., Madison, N. C.	96.51	1.02	2.47	80.5

2633	do. (<i>Dodder, Wild carrot, Wild mustard.</i>)	do.	Haywood & Boone, Durham, N. C.	92.03	4.37	3.60	†71.5
2780	do.	C. S. Brent, Lexington, Ky.	Madison Grocery Co., Madison, N. C.	*83.75	1.10	15.15	89.0
2790	do.	Hardin, Hamilton & Lewman, Louisville, Ky.	Byers Bros., Hendersonville, N. C.	97.20	1.26	1.54	91.0
2800	do. (<i>Wild mustard.</i>)	Louisville Seed Co., Louisville, Ky.	R. H. Hyatt & Co., Murphy, N. C.	98.56	.18	1.26	90.5
2799	do.	National Seed Co., Louisville, Ky.	Slayden, Fakes & Co., Asheville, N. C.	96.52	1.26	2.22	86.0
2817	do. (<i>Dodder, Wild carrot.</i>)	N. R. Savage & Son, Richmond, Va.	Davidson & Wolfe, Charlotte, N. C.	97.57	1.53	.90	91.5
2820	do.	do.	J. C. Moore & Bros. Co., Whitakers, N. C.	98.54	.98	.48	88.5
2787	do. (<i>Wild carrot.</i>)	do.	Mount Airy Feed Store, Mount Airy, N. C.	98.81	.44	.75	85.5
2893	do. (<i>Dodder.</i>)	do.	Parsons Drug Co., Wadesboro, N. C.	98.48	1.38	.14	86.0
2644	do. (<i>Wild carrot.</i>)	do.	T. M. Bynum, Goldston, N. C.	99.66	.20	.14	93.5
2778	do. (<i>Dodder.</i>)	T. W. Wood & Sons, Richmond, Va.	Farmers Union Agency Co., Winston-Salem, N. C.	99.05	.64	.31	88.0
2866	do. (<i>Wild mustard.</i>)	do.	Gaston Seed and Provision Co., Gastonia, N. C.	97.69	1.03	1.28	94.0
2770	do.	do.	do.	98.62	.16	1.22	†78.5
2769	do.	do.	do.	97.98	1.09	.93	92.0
2801	do.	do.	Grant's Pharmacy, Asheville, N. C.	96.47	.70	2.83	89.0
2632	do.	do.	Morrow Bros. & Heath Co., Albemarle, N. C.	98.26	1.18	.56	91.0
2472	do. (<i>Wild carrot.</i>)	do.	T. P. Nash, Elizabeth City, N. C.	97.39	1.40	1.21	†24.5
2591	do. (<i>Dodder.</i>)	do.	E. D. Noll Co., Sanford, N. C.	98.73	.44	.83	†49.0
2771	do.	do.	Spence & Hollowell Co., Elizabeth City, N. C.	98.99	.54	.47	87.0
2658	do. (<i>Wild carrot, Dodder.</i>)	do.	C. L. Spencer, New Bern, N. C.	98.15	.72	1.13	92.5
2815	do.	do.	S. J. Stallings, Littleton, N. C.	99.28	.25	.47	88.5
2867	do.	do.	Watson & King Co., Rockingham, N. C.	98.28	1.17	.55	89.0
2471	do. (<i>Wild carrot, Wild mustard.</i>)	do.	W. S. White & Co., Elizabeth City, N. C.	97.18	1.94	.88	84.0
2592	do. (<i>Wild carrot.</i>)	do.	Wilkins, Ricks & Co., Sanford, N. C.	98.33	.27	1.40	†67.5
2870	do.	do.	Wolfe Drug Co., Waxhaw, N. C.	99.12	.42	.46	93.5

TABLE I.—RESULTS OF TESTS OF 25 KINDS OF AGRICULTURAL SEEDS, 398 SAMPLES IN ALL, COLLECTED BY INSPECTORS FROM SEPTEMBER 1, 1912, TO JULY 15, 1913—CONTINUED.

Laboratory Number.	Kind of Seed and Name of Unlawful Seed Present.	Wholesale Dealer.	Retail Dealer.	Per Cent of Pure Seed.	Per Cent of Inert Matter.	Per Cent of Foreign Seed.	Per Cent of Germination.
2158	CLOVER, SWEET— (<i>Wild mustard</i> .)	Diggs & Beadles, Richmond, Va.	Farmers Union Agency Co., Winston-Salem, N. C.	93.67	2.18	4.15	56.5
2661	CORN, FIELD.	W. W. Barnard Co., Chicago, Ill.	R. R. Bellamy, Wilmington, N. C.	100.00			†93.0
2851	do.	Robert Buist Co., Philadelphia, Pa.	W. L. Hond & Co., Charlotte, N. C.				96.0
2852	do.	do.	do.				95.0
2758	do.	do.	Ruffin-High Co., Wilson, N. C.				99.5
2759	do.	do.	T. N. Waters & Bro., Goldsboro, N. C.				†88.0
2761	do.	Diggs & Beadles, Richmond, Va.	Z. M. L. Jeffreys, Goldsboro, N. C.				94.0
2752	do.	J. B. Rice Seed Co., Cambridge, N. Y.	Y. H. Knowles & Co., Mount Olive, N. C.				95.5
2760	do.	do.	T. N. Waters & Bro., Goldsboro, N. C.				†82.5
2345	do.	T. W. Wood & Sons, Richmond, Va.	F. B. Ashcraft, Monroe, N. C.				†73.0
2346	do.	do.	do.				98.0
2768	do.	do.	L. H. Caldwell, Lumberton, N. C.				†84.5
2767	do.	do.	do.				†93.0
2349	do.	do.	J. W. Carter, Maxton, N. C.				95.5
2348	do.	do.	Currie-Patterson Co., Maxton, N. C.				95.0
2847	do.	do.	do.				†85.5
2763	do.	do.	George E. Daniels, Goldsboro, N. C.				97.5
2762	do.	do.	do.				†92.0
2754	do.	do.	do.				96.0
2753	do.	do.	do.				†89.5

2766	do	do	M. W. Floyd, Lumberton, N. C.	98.0
2837	do	do	Fox & Lyon, Wadesboro, N. C.	98.0
2838	do	do	do	†85.0
2841	do	do	Gaston Seed and Provision Co., Gastonia, N. C.	95.0
2874	do	do	Harris Bros., Waxhaw, N. C.	96.5
2842	do	do	Hill & Son, Albemarle, N. C.	†90.0
2839	do	do	W. N. Jeans, Wadesboro, N. C.	†81.0
2840	do	do	do	†92.5
2765	do	do	W. J. Kirkham & Co., Wilmington, N. C.	†92.0
2764	do	do	do	96.0
2757	do	do	W. L. McGhee, Franklinton, N. C.	95.5
2850	do	do	W. J. Pace, Maxton, N. C.	96.0
2835	do	do	Red Springs Drug Co., Red Springs, N. C.	†85.0
2755	do	do	S. J. Stallings, Littleton, N. C.	96.5
2756	do	do	do	96.0
2836	do	do	Townsend Pharmacy, Red Springs, N. C.	†89.5
2843	do	do	Watson & King Co., Rockingham, N. C.	†92.5
2844	do	do	do	96.5
2873	do	do	Wolfe Drug Co., Waxhaw, N. C.	†83.0
2552	GRASS, ITALIAN RYE (<i>Cheat.</i>)	Diggs & Beadles, Richmond, Va.	94.60 3.70	1.70
2559	GRASS, ORCHARD (<i>Cheat.</i>)	C. S. Bront, Lexington, Ky.	*25.27 70.99	3.74
2477	do	John J. Buffington & Co., Baltimore, Md.	75.15 23.82	1.03
2630	do	Diggs & Beadles, Richmond, Va.	70.92 23.08	92.0
2518	do	T. W. Wood & Sons, Richmond, Va.	*67.34 30.68	94.0
2455	do	do	W. T. Adams & Co., Gastonia, N. C.	1.98
			Farmers Union Agency Co., Winston-Salem, N. C.	33.74
				.96

TABLE I.—RESULTS OF TESTS OF 25 KINDS OF AGRICULTURAL SEEDS, 398 SAMPLES IN ALL, COLLECTED BY INSPECTORS FROM SEPTEMBER 1, 1912, TO JULY 15, 1913—CONTINUED.

Laboratory Number.	Kind of Seed and Name of Unlawful Seed Present.	Wholesale Dealer.	Retail Dealer.	Per Cent of Pure Seed.	Per Cent of Inert Matter.	Per Cent of Foreign Seed.	Per Cent of Germination.
2631	GRASS, ORCHARD (<i>Cheat</i> .)	T. W. Wood & Sons, Richmond, Va.	Morrow Bros. & Heath Co., Albemarle, N. C.	*59.72	38.44	1.84	92.0
2635	GRASS, TAIL OAT (<i>Cheat</i> .)	do	do	80.19	15.95	3.86	†60.5
2814	MILLET, GERMAN	Diggs & Beadles, Richmond, Va.	S. J. Stallings, Littleton, N. C.	98.19	.44	1.37	96.0
2826	do	do	Williams' Drug Store, Goldsboro, N. C.	99.07	.18	.75	94.5
2818	do	N. R. Savage & Son, Richmond, Va.	Davidson & Wolfe, Charlotte, N. C.	99.40	.43	.17	93.0
2827	do	do	Deans & Moye Co., Goldsboro, N. C.	99.08	.64	.28	87.5
2861	do	do	Farmers Supply Co., Charlotte, N. C.	98.34	1.50	.16	†83.5
2828	do	do	Z. M. L. Jeffreys, Goldsboro, N. C.	98.13	1.42	.45	89.0
2812	do	do	Long, Winston & Co., Oxford, N. C.	98.66	.98	.36	90.5
2811	do	do	George A. Rose & Co., Henderson, N. C.	98.22	1.14	.64	89.5
2829	do	do	T. N. Waters & Bro., Goldsboro, N. C.	98.50	.99	.51	93.0
2813	do	George Tait & Sons, Norfolk, Va.	J. T. Williams & Bro., Ahoskie, N. C.	98.79	1.00	.21	94.5
2594	do	T. W. Wood & Sons, Richmond, Va.	E. D. Noll Co., Sanford, N. C.	99.54	-----	.46	†35.5
2869	do	do	Wolfe Drug Co., Waxhaw, N. C.	98.56	1.28	.16	94.5
2553	MILLET, PEARL	S. T. Beveridge & Co., Richmond, Va.	M. L. Flow, Monroe, N. C.	98.57	1.43	-----	91.0
2857	do	do	Parsons Drug Co., Wadesboro, N. C.	*98.40	1.60	-----	93.0
2784	do	Diggs & Beadles, Richmond, Va.	Deans & Moye Co., Goldsboro, N. C.	99.52	.48	-----	91.5
2832	do	do	Z. M. L. Jeffreys, Goldsboro, N. C.	98.80	1.20	-----	90.0
2831	do	Dixon & Etheridge, Goldsboro, N. C.	George E. Daniels, Goldsboro, N. C.	98.90	1.10	-----	92.0
2856	do	T. W. Wood & Sons, Richmond, Va.	J. W. Cartier, Maxton, N. C.	99.69	.25	.06	67.0

2834	do.	do.	M. W. Floyd, Lumberton, N. C.	98.55	1.29	.16	‡40.0
2854	do.	do.	Garrett & McNeill, Red Springs, N. C.	98.87	1.00	.13	‡53.5
2853	do.	do.	Red Springs Drug Co., Red Springs, N. C.	98.79	.71	.50	‡46.0
2833	do.	do.	Ruffin-Iligh Co., Wilson, N. C.	98.72	1.10	.18	‡51.5
2855	do.	do.	Watson & King Co., Rockingham, N. C.	98.84	.90	.26	‡37.5
2575	Oars	Armfield & Co., Fayetteville, N. C.	Currie-Patterson Co., Maxton, N. C.				97.0
2570	do.	Amos K. Bass, Caddo, Okla.	A. L. Bullock, Rowland, N. C.				96.5
2691	do.	S. T. Beveridge & Co., Richmond, Va.	Anderson, Crawford & Co., Williamston, N. C.				94.0
2607	do.	(Cheat.)	Apex Mule and Supply Co., Apex, N. C.				90.0
2648	do.	do.	Austin-Stephens Co., Smithfield, N. C.				96.0
2745	do.	do.	J. L. Bailey, Elm City, N. C.				93.0
2715	do.	do.	M. Hoffman & Bro., Scotland Neck, N. C.				‡54.5
2714	do.	do.	do.				95.0
2728	do.	do.	Howell Bros., Oxford, N. C.				98.0
2690	do.	do.	V. D. Jones, Edenton, N. C.				91.5
2736	do.	(Corn cockle.)	McGhee-Joyner Co., Franklinton, N. C.				94.5
2747	do.	(Cheat, Corn cockle, Wild onion.)	O. J. Moore & Co., Whitakers, N. C.				94.5
2729	do.	do.	Parham Supply Co., Henderson, N. C.				98.0
2678	do.	do.	R. B. Peters Grocery Co., Tarboro, N. C.				95.5
2679	do.	do.	do.				95.0
2746	do.	do.	Sharp & Farmer, Elm City, N. C.				‡47.0
2713	do.	do.	N. L. Stedman & Co., Halifax, N. C.				91.0
2735	do.	do.	C. S. Williams, Franklinton, N. C.				97.0
2571	do.	(Wild mustard.)	Nealy & Co., Vineland, N. C.				93.0
2450	do.	(Wild mustard.)	Adams Grain and Provision Co., Fayetteville, N. C.				95.0
2540	do.	do.	Armfield Co., Fayetteville, N. C.				98.0

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Laboratory Number.	Kind of Seed and Name of Unlawful Seed Present.	Wholesale Dealer.	Retail Dealer.	Per Cent of Pure Seed.	Per Cent of Inert Matter.	Per Cent of Foreign Seed.	Per Cent of Germination.
2511	OATS.....	Carter, Venable & Co., Richmond, Va.	Parham Supply Co., Henderson, N. C.				93.0
2510	do..... (<i>Cheat, Corn cockle.</i>)	do.....	Southern Grocery Co., Henderson, N. C.	*94.63	1.07	4.30	93.0
2509	do.....	do.....	White-Hight Co., Henderson, N. C.				95.0
2572	do.....	City Hay and Grain Co., Norfolk, Va.	Wilkins, Ricks & Co., Sanford, N. C.				97.0
2574	do.....	W. B. Cooper, Wilmington, N. C.	Rowland Grocery Co., Rowland, N. C.				95.0
2699	do.....	Dixon & Etheridge, Goldsboro, N. C.	M. J. Best & Sons, Goldsboro, N. C.				92.5
2701	do..... (<i>Cheat.</i>)	do.....	Deans & Moye Co., Goldsboro, N. C.				95.0
2693	do.....	do.....	W. P. Hardy, LaGrange, N. C.				96.0
2703	do.....	do.....	P. A. Hooker, Kinston, N. C.				†87.5
2704	do.....	do.....	do.....				96.0
2698	do..... (<i>Cheat.</i>)	do.....	Hooks Bros., Fremont, N. C.				90.5
2692	do.....	do.....	E. S. Mewborn, LaGrange, N. C.				95.0
2702	do..... (<i>Cheat.</i>)	do.....	H. Neil & Bro., Goldsboro, N. C.				95.0
2700	do.....	do.....	C. D. Taylor & Co., Goldsboro, N. C.				90.0
2742	do..... (<i>Cheat.</i>)	do.....	B. G. Thompson & Son, Goldsboro, N. C.				98.5
2569	do.....	Dupree Commission Co., Waco, Texas	H. W. Little & Co., Wadesboro, N. C.				99.5
2706	do.....	Elm City Lumber Co., New Bern, N. C.	Copeland Bros., Kinston, N. C.				90.5
2707	do.....	do.....	George J. Hales & Bro., Rocky Mount, N. C.				97.5
2680	do..... (<i>Cheat.</i>)	do.....	Josey Bros. & Co., Tarboro, N. C.				†21.0
2681	do.....	do.....	do.....				†17.0

2682	do	do	do	do	do	98.0
2646	do	Gillet Grain Co., Nashville, Tenn.	W. M. Sanders, Smithfield, N. C.			†81.5
2620	do	D. L. Gore Co., Wilmington, N. C.	Garrett & McNeill, Red Springs, N. C.			98.5
2654	do	A. E. Harris Grain Co., St. Louis, Mo.	Elm City Lumber Co., New Bern, N. C.			†61.0
2668	do	Alex. C. Harsh & Co., Nashville, Tenn.	Planters Trading Co., Laurinburg, N. C.			96.0
2667	do	E. G. Hines, Goldsboro, N. C.	George D. Best & Son, Fremont, N. C.			98.0
2667	do	do	do	*96.73	3.27	94.0
2694	do	do	R. G. Creek & Co., LaGrange, N. C.			98.5
2669	do	do	J. D. Davis, Fremont, N. C.	*96.05	3.87	†87.0
2668	do	do	Dees & Whitley, Fremont, N. C.	*95.58	4.39	95.0
2696	do	do	Hooks, Bellame & Co., Fremont, N. C.			95.0
2670	do	do	J. C. Peterson, Clinton, N. C.	*95.01	4.83	†78.0
2695	do	do	Simeon Wooten, LaGrange, N. C.			97.5
2630	do	Marsh Milling and Grain Co., Madill, Okla.	Hadley-Harriss Co., Wilson, N. C.	*96.56	2.85	96.5
2636	do	Mayo Milling Co., Richmond, Va.	J. F. Burns, Star, N. C.			†71.5
2711	do	do	R. C. Cannon & Sons, Ayden, N. C.			94.0
2710	do	do	J. J. Edwards & Son, Ayden, N. C.			96.0
2650	do	do	George M. Floyd & Co., Dunn, N. C.			100.0
2748	do	do	Green & Moore, Whitakers, N. C.			92.0
2722	do	do	Harrington & Bissett Co., Nashville, N. C.			†88.0
2749	do	(Cheat, Wild mustard.)	J. C. Moore Bros. & Co., Whitakers, N. C.			98.5
2709	do	do	B. F. Powell, Clinton, N. C.			97.0
2683	do	do	Roberson-Ruffin Co., Tarboro, N. C.			†82.0
2684	do	(Wild mustard.)	do			96.0
2712	do	do	J. R. Smith & Bro., Ayden, N. C.			92.0
2685	do	(Cheat.)	J. L. Stasley, Greenville, N. C.			98.0

TABLE I.—RESULTS OF TESTS OF 25 KINDS OF AGRICULTURAL SEEDS, 398 SAMPLES IN ALL, COLLECTED BY INSPECTORS FROM SEPTEMBER 1, 1912, TO JULY 15, 1913—CONTINUED.

Laboratory Number.	Kind of Seed and Name of Unlawful Seed Present.	Wholesale Dealer.		Retail Dealer.		Per Cent of Pure Seed.	Per Cent of Inert Matter.	Per Cent of Foreign Seed.	Per Cent of Germination.
2573	OATS	McNair & Pearsall, Wilmington, N. C.	Tabor Supply Co., Mount Tabor, N. C.						98.5
2561	do. (Wild mustard.)	Parsons & Hardison, Wadesboro, N. C.	Leak & Marshall, Wadesboro, N. C.						91.0
2560	do. (Cheat.)	do.	A. W. Porter, Rockingham, N. C.						95.5
2562	do.	Pearsall & Co., Wilmington, N. C.	Columbus Trading Co., Whiteville, N. C.						97.0
2563	do.	do.	Enterprise Grocery Co., Tabor, N. C.						95.5
2449	do.	Perry Mills Co., Perry, Okla.	Hall & Pearsall, Wilmington, N. C.			98.31	1.60	.09	98.0
2662	do.	Pittman & Harrison, Sherman, Texas.	D. L. Gore Co., Wilmington, N. C.						95.5
2724	do.	W. F. Richardson, Jr., & Co., Richmond, Va.	B. E. Bobbitt & Co., Enfield, N. C.						†48.5
2567	do.	do.	Chadbourn Grocery Co., Chadbourne, N. C.						94.0
2725	do.	do.	Curtis-Parson Co., Enfield, N. C.						99.5
2566	do.	do.	Enterprise Grocery Co., Tabor, N. C.						93.0
2743	do.	do.	N. R. Whitley, Fremont, N. C.						95.0
2737	do.	Roper & Co., Petersburg, Va.	McGhee-Joyner Co., Franklinton, N. C.						99.0
2723	do.	do.	L. J. Moore, Weldon, N. C.						100.0
2733	do.	N. R. Savage & Son, Richmond, Va.	Allen-Fleming Co., Warrenton, N. C.						97.0
2732	do.	do.	Beacon Supply Co., Henderson, N. C.						96.0
2719	do. (Corn cockle, Cheat.)	do.	Burroughs-Pittman-Wheeler Co., Scotland Neck, N. C.						95.5
2720	do.	do.	do.						94.5
2647	do. (Wild mustard.)	do.	Carter-Underwood Co., Smithfield, N. C.						†71.5
2726	do.	do.	Curtis-Parson Co., Enfield, N. C.						†84.5

2705	do.	do	Ray Dawson, Kinston, N. C.	94.0
2718	do.	do.	Edwards & Co., Scotland Neck, N. C.	97.5
2717	do.	do.	do.	†86.5
2739	do.	do.	Franklin Grocery Co., Franklinton, N. C.	92.5
2738	do.	do.	do.	93.0
2716	do.	do.	M. Hoffman & Bro., Scotland Neck, N. C.	97.0
2554	do.	do.	Hutcheson Bros., Reidsville, N. C.	98.0
2555	do.	do.	do.	93.5
2556	do.	do.	do.	94.0
2619	do.	do.	Long, Winston & Co., Oxford, N. C.	97.0
2731	do.	do.	Parham Supply Co., Henderson, N. C.	96.5
2512	do.	do.	G. A. Rose & Co., Henderson, N. C.	89.5
2744	do.	do.	R. S. Wells, Elm City, N. C.	91.0
2734	do.	Southern Distributing Co., Norfolk, Va.	Burroughs Grocery Co., Warrenton, N. C.	91.0
2741	do.	do.	R. W. Fleetwood, Jackson, N. C.	92.5
2721	do.	Suffolk Feed and Fuel Co., Suffolk, Va.	R. C. Josey & Co., Scotland Neck, N. C.	97.0
2655	do.	Tennessee and Oklahoma Grain Co., Nashville, Tenn.	Dixon & Etheridge, New Bern, N. C.	96.0
2649	do.	Tennessee Grain Co., Nashville, Tenn.	Parrish & Godwin Co., Benson, N. C.	97.5
2618	do.	T. W. Wood & Sons, Richmond, Va.	F. B. Ashcraft, Monroe, N. C.	97.0
2617	do.	do.	do.	94.0
2564	do.	do.	Columbus Trading Co., Whiteville, N. C.	98.5
2657	do.	do.	A. J. Cox & Co., Washington, N. C.	92.0
2689	do.	do.	Farmers Supply Co., Edenton, N. C.	94.0
2508	do.	do.	John H. Fleming, Warren Plains, N. C.	97.0
2727	do.	do.	E. B. Glover, Roanoke Rapids, N. C.	98.0
2565	do.	do.	Harris-McAuley Co., Norwood, N. C.	94.5

TABLE I.—RESULTS OF TESTS OF 25 KINDS OF AGRICULTURAL SEEDS, 398 SAMPLES IN ALL, COLLECTED BY INSPECTORS FROM SEPTEMBER 1, 1912, TO JULY 15, 1913—CONTINUED.

Laboratory Number.	Kind of Seed and Name of Unlawful Seed Present.	Wholesale Dealer.	Retail Dealer.	Pure Seed. Per Cent of	Inert Matter. Per Cent of	Foreign Seed. Per Cent of	Per Cent of Germination.
2507	OATS	T. W. Wood & Sons, Richmond, Va.	Hill Live Stock Co., Louisville, N. C.	97.89	.56	1.55	99.5
2508	do	do	do				95.0
2687	(<i>Wheat, Corn cockle.</i>)	do	F. V. Johnston, Greenville, N. C.				186.0
2686	do	do	do				186.0
2475	do	do	do				92.5
2740	do	do	W. L. McGhee, Franklinton, N. C.				96.5
2708	do	do	D. M. Patrick & Co., Clinton, N. C.				96.0
2730	do	do	George A. Rose & Co., Henderson, N. C.				99.0
2638	do	do	Standard Store Co., Aberdeen, N. C.				171.5
2637	do	do	John R. Stuart, Liberty, N. C.				91.5
2688	do	do	M. H. White & Co., Hertford, N. C.				98.0
2656	do	do	E. K. Willis, Washington, N. C.				91.5
2663	do	Not known from whom bought.	Hall & Pearsall, Wilmington, N. C.				183.5
2665	PEAS, ALASKA	W. W. Barnard Co., Chicago, Ill.	R. R. Bellamy, Wilmington, N. C.	100.00			92.0
2664	do	J. Bolgiano & Son, Baltimore, Md.	W. J. Kirkham & Co., Wilmington, N. C.	100.00			94.0
2666	do	Jerome B. Rice Seed Co., Cambridge, N. Y.	S. W. Willis, New Bern, N. C.	100.00			91.0
2659	do	T. W. Wood & Sons, Richmond, Va.	M. R. Springle, Beaufort, N. C.	100.00			95.5
2470	RAPE	John J. Buffington & Co., Baltimore, Md.	W. S. White & Co., Elizabeth City, N. C.	99.96	.01		139.0
2551	do	Diggs & Beadles, Richmond, Va.	Hadley-Harriss Co., Wilson, N. C.	100.00			144.0
2652	do	do	A. S. Huske, Fayetteville, N. C.	100.00			152.0

2595	do	T. W. Wood & Sons, Richmond, Va.	Brown Mercantile Co., Chadbourne, N. C.	99.66	.25	.09	95.5
2469	do	do	W. H. Guirkin, Williamston, N. C.	99.98		.02	189.0
2468	do	do	F. V. Johnston, Greenville, N. C.	99.94	.06		96.0
2596	do	do	E. D. Noll Co., Sanford, N. C.	99.93	.07		97.5
2550	do	do	T. W. Pace, LaGrange, N. C.	99.88	.12		96.5
2621	do	do	Townsend Pharmacy, Red Springs, N. C.	99.73	.27		96.5
2476	Restop	John J. Buffington & Co., Baltimore, Md.	T. P. Nash, Elizabeth City, N. C.	*40.62	3.19	56.19	90.5
2601	do	N. R. Savage & Son, Richmond, Va.	Parsons Drug Co., Wadesboro, N. C.	89.98	6.96	3.06	86.5
2580	Rve	Adams Grain and Provision Co., Charlotte, N. C.	Sinclair Mercantile Co., Norwood, N. C.				180.5
2579	do	Adams Grain and Provision Co., Richmond, Va.	Enterprise Grocery Co., Tabor, N. C.				156.5
2505	do	do	Hill Live Stock Co., Louisburg, N. C.				179.0
2465	do	S. T. Beveridge & Co., Richmond, Va.	Anderson, Crawford & Co., Williamston, N. C.	98.35	1.59	.06	94.0
2606	do	do	Apex Mule and Supply Co., Apex, N. C.				183.5
2527	do	do	Austin-Stephenson Co., Smithfield, N. C.				181.5
2464	do	do	W. S. Clark & Son, Tarboro, N. C.	*96.89	2.50	.61	187.5
2660	do	do	J. Havens, Washington, N. C.	98.34	.94	.72	188.0
2583	do	do	H. W. Little & Co., Wadesboro, N. C.				93.0
2528	do	do	E. J. Martin, Son & Co., Mount Olive, N. C.				91.5
2582	do	do	Mount Gilead Store Co., Mount Gilead, N. C.				179.5
2526	do	do	W. C. Moye & Son, Goldsboro, N. C.				188.0
2581	do	do	Powell Supply Co., Fair Bluff, N. C.				186.5
2628	do	do	L. N. Presson & Co., Monroe, N. C.				176.0
2529	do	do	P. L. Woodward & Co., Wilson, N. C.				90.5
2537	do	John J. Buffington & Co., Baltimore, Md.	B. F. Mitchell Co., Wilmington, N. C.	98.90	.52	.58	110.0
2535	do	Carter, Venable & Co., Richmond, Va.	Clayton Fruit Co., Clayton, N. C.	*95.47	2.97	1.56	187.0

TABLE I.—RESULTS OF TESTS OF 25 KINDS OF AGRICULTURAL SEEDS, 398 SAMPLES IN ALL, COLLECTED BY INSPECTORS FROM SEPTEMBER 1, 1912, TO JULY 15, 1913—CONTINUED.

Laboratory Number.	Kind of Seed and Name of Unlawful Seed Present.	Wholesale Dealer.	Retail Dealer.	Pure Cent of Seed.	Per Cent of Inert Matter.	Per Cent of Foreign Seed.	Per Cent of Germination.
2605	Rye. (Cheat, Wild mustard.)	Carter, Venable & Co., Richmond, Va.	F. R. Gray & Bro., Cary, N. C.				171.0
2533	do	do	Z. M. L. Jeffreys, Goldsboro, N. C.	*93.57	3.48	2.95	183.0
2626	do	do	Latham & Richardson, Monroe, N. C.				182.0
2750	(Cheat, Wild mustard.)	do	J. C. Moore & Bros., Whitakers, N. C.				172.5
2534	(Cheat, Wild mustard.)	do	Selma Supply Co., Selma, N. C.	*95.34	3.34	1.32	187.0
2446	do	do	George W. Sullivan, Williamston, N. C.	*89.83	4.12	6.05	181.5
2555	do	do	Wilkins-Ricks Co., Sanford, N. C.				91.5
2498	do	City Hay and Grain Co., Norfolk, Va.	Beacon Supply Co., Henderson, N. C.				187.0
2499	do	Diggs & Beadles, Richmond, Va.	B. G. Hicks, Louisville, N. C.				91.0
2532	do	do	A. S. Huske, Fayetteville, N. C.	98.42	1.44	.14	96.0
2651	do	do	do				165.0
2497	do	do	W. W. Parker, Henderson, N. C.				94.5
2500	do	do	Whedbee & Morris, Franklinton, N. C.				94.5
2586	do	W. W. Ellison, Son & Co., Waynesboro, Va.	Baldwin Grocery Co., Rockingham, N. C.				90.5
2536	(Corn cockle.)	Erly & Daniel Co., Cincinnati, Ohio.	Hadley-Harriss Co., Wilson, N. C.	*96.62	3.01	.37	185.0
2627	(Cheat.)	Hickory Seed Co., Hickory, N. C.	Garrett & McNeill, Red Springs, N. C.				171.0
2504	do	Roper & Co., Petersburg, Va.	Burroughs Grocery Co., Warrenton, N. C.				91.0
2503	do	do	White-Hight Co., Henderson, N. C.				93.5
2531	do	N. R. Savage & Son, Richmond, Va.	H. C. Edwards, Kinston, N. C.	98.16	1.77	.07	183.5
2530	do	do	Mathews, Weeks & Co., Rocky Mount, N. C.				189.0

2584	do	do	Parsons Drug Co., Wadesboro, N. C.	*95.22	3.96	.82	178.0
2502	do	do	Southern Grocery Co., Henderson, N. C.				95.0
2534	do	W. A. Simpson & Co., Baltimore, Md.	Charles B. Hill, New Bern, N. C.				
2578	do	T. W. Wood & Sons, Richmond, Va.	Brown Mercantile Co., Chadbourne, N. C.				180.5
2640	do	(Cheat, Wild mustard.)	A. J. Burrow, Troy, N. C.	97.93	1.77	.30	179.0
2751	do	do	L. H. Caldwell, Lumberton, N. C.				183.5
2522	do	(Cheat.)	W. B. Cooper Co., Wilmington, N. C.				
2524	do	(Wild mustard.)	C. Harrell & Son, Burgaw, N. C.				163.0
2467	do	(Corn cockle.)	F. V. Johnston, Greenville, N. C.				
2521	do	(Cheat, Wild mustard.)	Y. H. Knowles Co., Mount Olive, N. C.				
2577	do	do	Powell & Co., Vineland, N. C.	98.53	1.38	.09	91.0
2523	do	(Cheat.)	B. F. Powell, Clinton, N. C.				
2525	do	do	C. L. Spencer, New Bern, N. C.				95.0
2639	do	do	Standard Store Co., Aberdeen, N. C.	98.21	1.25	.54	187.5
2501	do	(Wild mustard.)	Sterling Cotton Mill, Franklinton, N. C.				96.0
2576	do	(Cheat.)	John W. Ward, Rowland, N. C.				
2862	SORGHUM	do	M. L. Flow, Monroe, N. C.	*85.32	14.30	.38	176.5
2863	do	N. R. Savage & Son, Richmond, Va.	E. N. Covington & Co., Rockingham, N. C.	99.58	.42		95.0
2875	do	T. W. Wood & Sons, Richmond, Va.	Harris Bros., Waxhaw, N. C.	99.62	.38		96.0
2816	TEOSINTE	do	S. J. Stallings, Littleton, N. C.	99.67	.33		3.0
2777	TIMOTHY	do	City Grocery Co., Madison, N. C.	*94.93	2.49	2.58	175.5
2634	do	do	Haywood & Boone, Durham, N. C.	99.39	.23	.38	170.5
2776	do	do	Madison Grocery Co., Madison, N. C.	99.24	.38	.38	94.0
2792	do	do	Byers Bros., Hendersonville, N. C.	98.83	.81	.36	95.8
2808	do	do	Grant's Pharmacy, Asheville, N. C.	99.62	.28	.10	98.0
2810	do	do	J. O. Houston & Son, Hendersonville, N. C.	98.96	.26	.78	98.3

TABLE I.—RESULTS OF TESTS OF 25 KINDS OF AGRICULTURAL SEEDS, 398 SAMPLES IN ALL, COLLECTED BY INSPECTORS FROM SEPTEMBER 1, 1912, TO JULY 15, 1913—CONTINUED.

Laboratory Number.	Kind of Seed and Name of Unlawful Seed Present.	Wholesale Dealer.	Retail Dealer.	Pure Seed. Per Cent of	Inert Matter. Per Cent of	Foreign Seed. Per Cent of	Germination. Per Cent of
2809	THORNY	Louisville Seed Co., Louisville, Ky.	R. H. Hyatt & Co., Murphy, N. C.	98.76	.43	.81	93.0
2553	do.	N. R. Savage & Son, Richmond, Va.	C. Call, North Wilkesboro, N. C.	98.18	1.45	.37	86.5
2785	do.	do.	Mount Airy Feed Store, Mount Airy, N. C.	99.32	.34	.34	97.0
2520	do.	T. W. Wood & Sons, Richmond, Va.	W. T. Adams & Co., Gastonia, N. C.	97.35	2.11	.54	174.8
2775	do.	do.	Farmers Union Agency Co., Winston-Salem, N. C.	98.16	.92	.92	95.8
2865	do.	do.	Gaston Seed and Provision Co., Gastonia, N. C.	97.62	1.49	.89	93.0
2516	VETCH, WINTER	N. R. Savage & Son, Richmond, Va.	Davidson & Wolfe, Charlotte, N. C.	99.15	—	.85	66.0
2517	do. (Corn cockle.)	T. W. Wood & Sons, Richmond, Va.	W. T. Adams & Co., Gastonia, N. C.	97.31	.12	2.57	67.5
2456	do. (Corn cockle.)	do.	Farmers Union Agency Co., Winston-Salem, N. C.	98.82	.24	.94	62.0
2474	do. (Corn cockle.)	do.	F. V. Johnston, Greenville, N. C.	97.00	—	3.00	65.5
2625	WHEAT	N. R. Savage & Son, Richmond, Va.	Hornor Bros., Oxford, N. C.	98.42	1.38	.20	91.0
2623	do. (Corn cockle, Cheat.)	T. W. Wood & Sons, Richmond, Va.	F. B. Ashcraft, Monroe, N. C.	100.00	—	—	92.5
2622	do.	do.	do.	99.18	.82	—	96.0
2599	do.	do.	Enterprise Grocery Co., Tabor, N. C.	99.97	—	.03	95.5
2624	do. (Corn cockle.)	do.	Morrow Bros. & Heath Co., Albemarle, N. C.	99.77	.23	—	93.0
2642	do.	do.	C. H. Staley, Liberty, N. C.	99.70	.30	—	95.0

*Below standard for purity.

†Below standard for germination.

‡Sample examined for unlawful seeds, too weevil-eaten to make regular test.

TABLE II.—SUMMARY OF RESULTS OF TESTS OF 30 KINDS OF AGRICULTURAL SEEDS, 534 SAMPLES IN ALL, SUBMITTED BY INSPECTORS AND INDIVIDUALS FROM SEPTEMBER 1, 1912, TO JULY 15, 1913.

KIND OF SEED.	Samples from Inspectors.		Samples from Individuals.		For Purity.		For Germination.		Purity Test.						Germination Test.									
									Pure Seed.			Inert Matter.			Foreign Seed.									
	Standard	Per Cent.	Highest	Lowest	Per Cent.	Average	Highest	Per Cent.	Lowest	Per Cent.	Average	Highest	Per Cent.	Lowest	Per Cent.	Average	Per Cent.	Standard	Highest	Per Cent.	Lowest	Per Cent.	Average	Per Cent.
ALFALFA.....	6	4	10	8	10	96	99.63	94.90	98.64	1.26	.23	.51	4.87	.02	.86	---	---	80	94.5	45.5	72.15	Per Cent.	Lowest	Per Cent.
BARLEY.....	3	---	3	3	3	98	99.35	96.91	98.22	1.86	.61	1.17	1.23	.04	.61	3	3	90	98.5	94.0	96.33	Per Cent.	Lowest	Per Cent.
BEANS, SOY.....	---	1	1	---	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
BEANS, VELVET.....	---	8	8	---	8	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
BLUEGRASS, KENTUCKY.....	14	5	19	19	19	80	89.11	38.06	74.11	42.78	10.69	24.32	19.16	.06	1.57	1	1	45	83.0	20.0	55.16	Per Cent.	Lowest	Per Cent.
CHUFAS.....	1	1	2	---	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
CLOVER, ALSIKE.....	2	---	2	2	2	96	98.48	96.11	97.30	.58	.42	.50	3.31	1.10	2.21	---	---	75	81.0	77.3	79.15	Per Cent.	Lowest	Per Cent.
CLOVER, BUR.....	1	---	1	1	1	---	99.23	---	---	.47	---	---	.30	---	---	---	---	---	---	---	---	---	---	---
CLOVER, CRIMSON.....	54	12	66	66	66	98	99.67	92.92	97.36	5.81	.32	1.99	3.52	.10	.65	36	36	85	99.0	10.0	88.28	Per Cent.	Lowest	Per Cent.
CLOVER, RED.....	27	24	51	51	51	92	99.66	83.75	96.90	7.90	.08	3.43	15.15	.06	1.63	28	28	80	98.0	24.5	84.36	Per Cent.	Lowest	Per Cent.
CLOVER, SWEET.....	1	---	1	1	1	1	93.67	---	---	2.18	---	---	4.15	---	---	1	1	---	---	---	---	---	---	---
CORN, FIELD.....	38	35	73	1	73	99	100.00	---	---	---	---	---	---	---	---	---	---	94	99.5	73.0	93.52	Per Cent.	Lowest	Per Cent.
COWPEAS.....	---	14	14	---	14	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
FESCUE, MEADOW.....	---	1	1	1	1	95	97.87	---	---	1.23	---	---	.90	---	---	1	1	85	96.5	---	---	---	---	---
GRASS, ITALIAN RYE.....	1	---	1	1	1	95	94.60	---	---	3.70	---	---	1.70	---	---	1	1	80	36.0	---	---	---	---	---
GRASS, ORCHARD.....	6	3	9	9	9	70	78.80	25.27	62.98	70.99	20.12	35.48	3.74	.96	1.54	5	5	70	94.0	47.5	86.11	Per Cent.	Lowest	Per Cent.

TABLE II.—SUMMARY OF RESULTS OF TESTS OF 30 KINDS OF AGRICULTURAL SEEDS, 534 SAMPLES IN ALL, SUBMITTED BY INSPECTORS AND INDIVIDUALS FROM SEPTEMBER 1, 1912, TO JULY 15, 1913.

KIND OF SEED.	Purity Test.										Germination Test.																				
	Samples from Inspectors.					Samples from Individuals.					Total Samples Received.		For Purity.		For Germination.		Pure Seed.					Inert Matter.					Foreign Seed.				
	Samples from Inspectors.		Samples from Individuals.		Total Samples Received.	For Purity.	For Germination.	Pure Seed.					Inert Matter.					Foreign Seed.													
								Standard	Per Cent.	Highest	Per Cent.	Lowest	Per Cent.	Average	Per Cent.	Highest	Per Cent.	Lowest	Per Cent.	Average	Per Cent.	Standard	Per Cent.	Highest	Per Cent.	Lowest	Per Cent.	Average	Per Cent.	Standard	Per Cent.
GRASS, TALL OAT.	1	1	2	2	2	2	72	90.16	80.19	85.18	15.95	5.00	10.48	4.84	3.86	4.35	1	70	60.5	40.0	50.25										
MILLET, GERMAN.	12		12	12	12	12	90	99.54	98.13	98.71	1.50	.18	.83	1.37	.16	.46		85	96.0	35.5	86.75										
MILLET, PEARL.	11		11	11	11	11	99	99.69	98.40	98.88	1.60	.25	1.01	.50	.06	.12		65	93.0	37.5	68.45										
OATS.	126	16	142	22	142	142	98	99.79	91.76	97.00	5.24	.21	2.25	4.30	.01	.75	31	90	100.0	17.0	89.04										
PEAS, ALASKA.	4		4	4	4	4		100.00	100.00	100.00									95.5	91.0	93.13										
PEAS, CANADA FIELD		2	2		2	2													88.0	59.0	73.53										
RAPE.	9		9	9	9	9	99	100.00	99.66	99.90	.27		.09	.09		.01		90	97.5	39.0	78.44										
REDTOP.	2	6	8	8	8	8	90	98.05	40.62	89.03	6.96	1.72	3.27	56.19	.19	7.70		70	93.3	56.0	84.00										
RYE.	53		53	15	47	47	98	98.90	89.83	96.65	4.12	.52	2.27	6.05	.06	1.08	26	90	96.0	10.0	83.00										
SORGHUM.	3	1	4	3	4	4	96	99.62	85.32	94.51	14.30	.38	5.03	.38		.13		80	96.0	76.5	88.50										
TEOSINTE.	1		1	1	1	1		99.67			.33								3.0												
TMOTHY.	12		12	12	12	12	96	99.62	94.93	98.36	2.19	.23	.93	2.58	.10	.70		85	98.3	70.5	89.35										
VETCH, WINTER.	4	2	6	6	6	6		100.00	87.53	96.64	.53		.15	12.47		3.31	5		89.0	62.0	83.17										
WHEAT.	6		6	6	6	6	98	100.00	98.42	99.51	1.38		.45	.20		.04	2	90	96.0	91.0	93.88										

NOTE.—Two samples of Grass Mixture and one sample of Ginseng were tested, but are not included in above chart.

TABLE, III.—THE ADULTERATION OF AGRICULTURAL SEEDS.

Laboratory Number.	Kind of Seed and Number of Samples Tested.	Wholesale Dealer.	Retail Dealer.	Adulterant.	Per Cent of Adulteration.
2629	ALFALFA, 6	Diggs & Beadles, Richmond, Va.	C. E. King & Sons, Durham, N. C.	Red clover	5
2453	BUEGRASS, KENTUCKY, 14	J. Bolgiano & Son, Baltimore, Md.	Haywood & Boone, Durham, N. C.	Canada bluegrass	15
2780	CLOVER, RED, 27	C. S. Brent, Lexington, Ky.	Madison Grocery Co., Madison, N. C.	Alfalfa	15
2476	REPTOP, 2	John J. Buffington & Co., Baltimore, Md.	T. P. Nash, Elizabeth City, N. C.	Timothy	55
2466	RYE, 53	Carter, Venable & Co., Richmond, Va.	George W. Sullivan, Williamston, N. C.	Wheat	6

NOTE.—The above table shows 5 cases of adulteration which were found in the 398 agricultural seed samples collected by inspectors. No case is reported where an adulterant was not present to the amount of 5 per cent.

TABLE IV.—RESULTS OF GERMINATION TESTS OF 8 KINDS OF VEGETABLE SEEDS, 193 SAMPLES IN ALL, COLLECTED BY INSPECTORS
FROM SEPTEMBER 1, 1912, TO JULY 15, 1913.

Laboratory Number.	Kind of Seed.	Wholesale Dealer.	Retail Dealer.	Per Cent of Germination.
3349	BEETS	W. W. Barnard Co., Chicago, Ill.	R. R. Bellamy, Wilmington, N. C.	72.0
3586	do	do	T. N. Waters & Bro., Goldsboro, N. C.	81.5
3682	do	J. Bolgiano & Son, Baltimore, Md.	E. Clarke, Weldon, N. C.	73.0
3346	do	Robert Buist Co., Philadelphia, Pa.	W. A. & J. G. Blount, Washington, N. C.	81.0
3487	do	do	R. E. L. Cook, Tarboro, N. C.	81.0
3564	do	do	Parsons Drug Co., Wadesboro, N. C.	84.5
3606	do	do	Temple Drug Co., Kinston, N. C.	85.0
3600	do	do	do	86.0
3780	do	Crosman Bros. Co., Rochester, N. Y.	J. L. Bailey, Elm City, N. C.	35.5
3775	do	do	Barnes Bros., Proctorville, N. C.	84.0
3848	do	do	F. L. Burns, Maxton, N. C.	76.0
3680	do	do	E. Clarke, Weldon, N. C.	83.5
3719	do	do	Wells Dillery, Roanoke Rapids, N. C.	76.0
3767	do	do	Ruffin-High Co., Wilson, N. C.	25.0
3770	do	do	Taylor & Cowan, Jackson, N. C.	39.5
3807	do	D. M. Ferry & Co., Detroit, Mich.	Barnes-Finger Drug Co., Kings Mountain, N. C.	87.5
3228	do	do	A. J. Cook & Co., Fayetteville, N. C.	80.5
3734	do	do	S. J. Dilday, Ahsokie, N. C.	78.0
3697	do	do	Franklin Grocery Co., Franklinton, N. C.	78.0
3663	do	do	Harrison & Hill Drug Co., Enfield, N. C.	85.0

3391	do	do	F. V. Johnston, Greenville, N. C.	74.0
3420	do	do	J. B. Morton, Morehead City, N. C.	78.5
3434	do	do	Potter Bros., Beaufort, N. C.	74.5
3403	do	do	J. H. Roberson & Co., Robersonville, N. C.	91.0
3409	do	do	Theo. Roberson & Co., Williamston, N. C.	81.0
3252	do	do	Robinson Bros., Dunn, N. C.	82.0
3397	do	do	Robinson-Ruffin Co., Tarboro, N. C.	80.0
3240	do	do	W. M. Sanders, Smithfield, N. C.	66.0
3246	do	do	Selma Drug Co., Selma, N. C.	74.5
3740	do	do	J. T. Sizemore, Oxford, N. C.	77.5
3234	do	do	W. F. Smith, Benson, N. C.	79.5
3415	do	do	Henry L. Spruill, Plymouth, N. C.	79.0
3860	do	do	Standard Store Co., Aberdeen, N. C.	91.0
3452	do	do	D. W. Tart, Roseboro, N. C.	89.0
3446	do	do	G. T. Walton & Son, Jacksonville, N. C.	78.0
3427	do	do	E. K. Willis, Washington, N. C.	82.0
3383	do	do	Watson Winslow, Hertford, N. C.	72.0
3669	do	do	J. D. Winstead & Son, Nashville, N. C.	85.0
3830	do	Lake Shore Seed Co., Dunkirk, N. Y.	Adams Drug Co., Gastonia, N. C.	76.0
3507	do	do	Divers & Roper, Hertford, N. C.	80.0
3263	do	do	J. B. Fields, Fayetteville, N. C.	87.5
3825	do	do	Hamlet Pharmacy, Hamlet, N. C.	89.0
3854	do	do	A. L. Jones, Maxton, N. C.	53.0
3631	do	do	Martin & Price Co., Mount Olive, N. C.	60.5
3626	do	do	E. S. Mewborn, LaGrange, N. C.	57.5
3373	do	do	Tom L. Smith, Plymouth, N. C.	76.5

TABLE IV.—RESULTS OF GERMINATION TESTS OF 8 KINDS OF VEGETABLE SEEDS, 193 SAMPLES IN ALL, COLLECTED BY INSPECTORS FROM SEPTEMBER 1, 1912, TO JULY 15, 1913—CONTINUED.

Laboratory Number.	Kind of Seed.	Wholesale Dealer.	Retail Dealer.	Per Cent of Germination.
3020	BEETS	Lake Shore Seed Co., Dunkirk, N. Y.	H. S. Southerland, Clinton, N. C.	68.0
3502	do.	do.	J. L. Stashey, Greenville, N. C.	65.0
3795	do.	do.	V. F. Tarton, Wadesboro, N. C.	61.5
3336	do.	do.	D. W. Tart, Roseboro, N. C.	81.5
3707	do.	D. Landreth Seed Co., Bristol, Pa.	Aycock Drug Co., Louisburg, N. C.	75.0
3432	do.	do.	Beaufort Drug Co., Beaufort, N. C.	89.0
3610	do.	do.	Henry Dunn, Kinston, N. C.	67.0
3820	do.	do.	J. T. Fields, Laurinburg, N. C.	87.0
3519	do.	do.	W. S. White & Co., Elizabeth City, N. C.	53.0
3785	do.	Leonard Seed Co., Chicago, Ill.	Charlotte Drug Co., Charlotte, N. C.	86.0
3596	do.	L. L. May & Co., St. Paul, Minn.	Kyser's Drug Store, Rocky Mount, N. C.	70.5
3764	do.	do.	Ruffin-High Co., Wilson, N. C.	71.0
3348	do.	J. B. Rice Seed Co., Cambridge, N. Y.	J. F. Clarke, New Bern, N. C.	61.0
3583	do.	do.	Z. M. L. Jeffreys, Goldsboro, N. C.	75.0
3522	do.	do.	W. S. White & Co., Elizabeth City, N. C.	61.5
3511	do.	T. W. Wood & Sons, Richmond, Va.	W. S. Blanchard & Son, Hertford, N. C.	90.0
3490	do.	do.	J. A. Mitchener, Edenton, N. C.	86.0
3783	do.	do.	Whitakers Pharmacy, Whitakers, N. C.	70.0
3222	CABBAGES	Diggs & Beadles, Richmond, Va.	A. S. Huske, Fayetteville, N. C.	87.5
3223	do.	J. B. Rice Seed Co., Cambridge, N. Y.	do.	12.0

3221	do.	do.	do.	34.0
3220	do.	do.	W. W. Parker, Henderson, N. C.	76.0
3219	COLLARDS.	Robert Buist Co., Philadelphia, Pa.	W. S. White & Co., Elizabeth City, N. C.	51.5
3212	KALE.	T. W. Wood & Sons, Richmond, Va.	F. V. Johnston, Greenville, N. C.	71.0
3213	MUSTARD.	do.	do.	51.0
3366	RADISHES.	W. W. Barnard Co., Chicago, Ill.	R. R. Bellamy, Wilmington, N. C.	80.5
3684	do.	J. Bolgiano & Son, Baltimore, Md.	E. Clarke, Weldon, N. C.	98.0
3365	do.	do.	W. J. Kirkham & Co., Wilmington, N. C.	74.0
3489	do.	Robert Buist Co., Philadelphia, Pa.	R. E. L. Cook, Tarboro, N. C.	68.0
3565	do.	do.	Parsons Drug Co., Wadesboro, N. C.	53.5
3602	do.	do.	Temple Drug Co., Kinston, N. C.	41.0
3715	do.	Crosman Bros. Co., Rochester, N. Y.	E. T. Alford, Youngsville, N. C.	52.0
3782	do.	do.	J. L. Baily, Elm City, N. C.	40.5
3850	do.	do.	E. L. Burnas, Maxton, N. C.	63.5
3681	do.	do.	E. Clarke, Weldon, N. C.	94.5
3721	do.	do.	Wells Dillery, Roanoke Rapids, N. C.	51.5
3846	do.	do.	Hart Drug Co., Norwood, N. C.	68.0
3837	do.	do.	Kennedy's Drug Store, Gastonia, N. C.	48.0
3813	do.	do.	Kiser & Mauney, Kings Mountain, N. C.	40.5
3695	do.	do.	W. W. Parker, Henderson, N. C.	46.0
3768	do.	do.	Ruffin-High Co., Wilson, N. C.	56.0
3842	do.	do.	Shankle-Snuggs Co., Albemarle, N. C.	58.5
3771	do.	do.	Taylor & Cowan, Jackson, N. C.	63.5
3677	do.	do.	G. T. Whitehead & Co., Scotland Neck, N. C.	46.5
3809	do.	D. M. Ferry & Co., Detroit, Mich.	Barnes-Finger Drug Co., Kings Mountain, N. C.	94.5
3730	do.	do.	Burroughs Grocery Co., Warrenton, N. C.	89.0

TABLE IV.—RESULTS OF GERMINATION TESTS OF 8 KINDS OF VEGETABLE SEEDS, 193 SAMPLES IN ALL, COLLECTED BY INSPECTORS FROM SEPTEMBER 1, 1912, TO JULY 15, 1913—CONTINUED.

Laboratory Number.	Kind of Seed.	Wholesale Dealer.	Retail Dealer.	Per Cent of Germination.
3761	RADISHES	D. M. Ferry & Co., Detroit, Mich.	Butters Lumber Co., Boardman, N. C.	100.0
3230	do.	do.	A. J. Cook & Co., Fayetteville, N. C.	90.5
3442	do.	do.	B. B. Davenport, New Bern, N. C.	96.5
3736	do.	do.	S. J. Dilday, Ahoskie, N. C.	97.0
3592	do.	do.	Fitzgerald Drug Co., Rocky Mount, N. C.	86.0
3699	do.	do.	Franklin Grocery Co., Franklinton, N. C.	88.5
3665	do.	do.	Harrison & Hill Drug Co., Enfield, N. C.	98.5
3390	do.	do.	F. V. Johnston, Greenville, N. C.	87.0
3436	do.	do.	Potter Bros., Beaufort, N. C.	97.0
3404	do.	do.	J. H. Roberson & Co., Robersonville, N. C.	92.0
3410	do.	do.	Theo. Roberson & Co., Williamston, N. C.	99.5
3254	do.	do.	Robinson Bros., Dunn, N. C.	90.5
3398	do.	do.	Robinson-Ruffin Co., Tarboro, N. C.	93.0
3242	do.	do.	W. M. Sanders, Smithfield, N. C.	79.0
3248	do.	do.	Selma Drug Co., Selma, N. C.	84.0
3742	do.	do.	J. T. Sizenore, Oxford, N. C.	78.5
3236	do.	do.	W. F. Smith, Benson, N. C.	88.0
3416	do.	do.	Henry L. Spruill, Plymouth, N. C.	91.5
3862	do.	do.	Standard Store Co., Aberdeen, N. C.	84.0
3454	do.	do.	D. W. Tart, Roseboro, N. C.	87.0

3448	do	do	G. T. Walton & Son, Jacksonville, N. C.	99.0
3424	do	do	E. K. Willis, Washington, N. C.	83.0
3385	do	do	Watson Winslow, Hertford, N. C.	73.0
3671	do	do	J. D. Winstead & Son, Nashville, N. C.	91.0
3832	do	Lake Shore Seed Co., Dunkirk, N. Y.	Adams Drug Co., Gastonia, N. C.	60.5
3344	do	do	J. F. Clarke, New Bern, N. C.	88.0
3509	do	do	Divers & Roper, Hertford, N. C.	58.5
3265	do	do	J. B. Fields, Fayetteville, N. C.	99.5
3827	do	do	Hamlet Pharmacy, Hamlet, N. C.	88.5
3856	do	do	A. L. Jones, Maxton, N. C.	86.5
3633	do	do	Martin & Price Co., Mount Olive, N. C.	99.0
3628	do	do	E. S. Mewborn, LaGrange, N. C.	95.5
3369	do	do	Tom L. Smith, Plymouth, N. C.	86.5
3622	do	do	H. S. Southerland, Clinton, N. C.	60.0
3504	do	do	J. L. Stashey, Greenville, N. C.	98.0
3797	do	do	V. F. Tarlton, Wadesboro, N. C.	47.5
3338	do	do	D. W. Tart, Roseboro, N. C.	72.5
3499	do	do	W. S. White, Edenton, N. C.	62.0
3709	do	D. Landreth Seed Co., Bristol, Pa.	Ayeock Drug Co., Louisburg, N. C.	96.0
3430	do	do	Beaufort Drug Co., Beaufort, N. C.	95.0
3612	do	do	Henry Dunn, Kinston, N. C.	77.0
3822	do	do	J. T. Fields, Laurinburg, N. C.	79.0
3747	do	do	Hamilton Drug Co., Oxford, N. C.	100.0
3518	do	do	Roberson, Cory & Co., Robersonville, N. C.	80.0
3521	do	do	W. S. White & Co., Elizabeth City, N. C.	93.0
3790	do	Leonard Seed Co., Chicago, Ill.	Charlotte Drug Co., Charlotte, N. C.	99.5

TABLE IV.—RESULTS OF GERMINATION TESTS OF 8 KINDS OF VEGETABLE SEEDS, 103 SAMPLES IN ALL, COLLECTED BY INSPECTORS FROM SEPTEMBER 1, 1912, TO JULY 15, 1913—CONTINUED.

Laboratory Number.	Kind of Seed.	Wholesale Dealer.	Retail Dealer.	Per Cent of Germination.
3706	RADISHES	L. L. May & Co., St. Paul, Minn.	Beasley-Austin Drug Co., Louisville, N. C.	95.0
3376	do.	do.	Divers & Roper, Hertford, N. C.	14.0
3598	do.	do.	Kyser's Drug Store, Rocky Mount, N. C.	87.5
3765	do.	do.	Ruffin-High Co., Wilson, N. C.	62.5
3260	do.	J. B. Rice Seed Co., Cambridge, N. Y.	A. S. Huske, Fayetteville, N. C.	1.0
3515	do.	T. W. Wood & Sons, Richmond, Va.	Alexander & Blount, Plymouth, N. C.	75.5
3513	do.	do.	W. S. Blanchard & Son, Hertford, N. C.	86.5
3492	do.	do.	J. A. Mitchener, Edenton, N. C.	55.5
3784	do.	do.	Whitakers Pharmacy, Whitakers, N. C.	96.0
3562	TOMATOES	Robert Buist Co., Philadelphia, Pa.	Parsons Drug Co., Wadesboro, N. C.	62.0
3478	do.	do.	Reese & Alexander, Inc., Charlotte, N. C.	81.5
3279	do.	do.	P. A. Thompson, Winston-Salem, N. C.	72.0
3653	do.	do.	I. W. West Drug Co., Mount Airy, N. C.	61.5
3289	do.	Crosman Bros. Co., Rochester, N. Y.	J. Enra Cox, Winston-Salem, N. C.	81.5
3283	do.	do.	Eford Bros., Winston-Salem, N. C.	76.5
3557	do.	do.	Fox & Lyon, Wadesboro, N. C.	66.5
3643	do.	do.	Golden Rule Drug Store, Walnut Cove, N. C.	73.5
3638	do.	do.	Madison Grocery Co., Madison, N. C.	62.5
3294	do.	do.	J. G. Messiek, Winston-Salem, N. C.	79.5
3648	do.	do.	Peoples Drug Store, Mount Airy, N. C.	69.5

3323	do	D. M. Ferry & Co., Detroit, Mich.	Cabarrus Drug Co., Concord, N. C.	77.0
3408	do	do	Charlotte Drug Co., Charlotte, N. C.	77.0
3319	do	do	Cook & Harris, Concord, N. C.	71.0
3326	do	do	Dove-Bost Co., Concord, N. C.	78.5
3531	do	do	English Drug Co., Monroe, N. C.	69.5
3274	do	do	Farmers Trade House Co., Winston-Salem, N. C.	86.5
3572	do	do	L. G. Fox, Rockingham, N. C.	70.0
3541	do	do	Latham & Richardson, Monroe, N. C.	83.5
3307	do	do	J. W. McPherson & Co., Salisbury, N. C.	79.5
3658	do	do	Mount Airy Feed Store, Mount Airy, N. C.	89.0
3302	do	do	Owens Drug Co., Winston-Salem, N. C.	93.5
3567	do	do	Parsons Drug Co., Wadesboro, N. C.	85.0
3463	do	do	Torrence Drug Co., Gastonia, N. C.	84.5
3536	do	do	Dr. S. J. Welsh & Son, Monroe, N. C.	90.0
3473	do	do	Woodall & Sheppard, Charlotte, N. C.	76.0
3577	do	Lake Shore Seed Co., Dunkirk, N. Y.	Eagle Pharmacy, Rockingham, N. C.	28.0
3547	do	do	Latham & Richardson, Monroe, N. C.	84.0
3750	do	do	Lawnings Drug Store, Lincolnton, N. C.	76.0
3552	do	do	Earle Morrow Drug Store, Hamlet, N. C.	85.0
3526	do	D. Landreth Seed Co., Bristol, Pa.	English Drug Co., Monroe, N. C.	94.0
3331	do	do	Fetzer & Tucker, Reidsville, N. C.	62.0
3688	do	do	Grant's Pharmacy, Asheville, N. C.	99.5
3299	do	do	E. W. O'Hanlon & Co., Winston-Salem, N. C.	76.0
3379	do	L. L. May & Co., St. Paul, Minn.	Divers & Roper, Hertford, N. C.	75.0
3316	do	T. W. Wood & Sons, Richmond, Va.	Davis Drug Co., Concord, N. C.	75.5
3453	do	do	Gaston Seed and Provision Co., Gastonia, N. C.	93.0

TABLE IV.—RESULTS OF GERMINATION TESTS OF 8 KINDS OF VEGETABLE SEEDS, 193 SAMPLES IN ALL, COLLECTED BY INSPECTORS FROM SEPTEMBER 1, 1912, TO JULY 15, 1913—CONTINUED.

Laboratory Number.	Kind of Seed.	Wholesale Dealer.	Retail Dealer.	Per Cent of Germination.
3313	TOMATOES	T. W. Wood & Sons, Richmond, Va.	Gibson Drug Co., Concord, N. C.	94.0
3218	TURNIPS	Robert Buist Co., Philadelphia, Pa.	W. S. White & Co., Elizabeth City, N. C.	16.0
3216	do	D. Landreth Seed Co., Bristol, Pa.	do	97.5
3217	do	do	do	62.0
3225	do	J. B. Rice Seed Co., Cambridge, N. Y.	A. S. Huske, Fayetteville, N. C.	87.0
3224	do	do	do	57.0
3215	do	do	W. S. White & Co., Elizabeth City, N. C.	82.5
3226	do	T. W. Wood & Sons, Richmond, Va.	L. H. Caldwell, Lumberton, N. C.	66.0
3214	do	do	F. V. Johnston, Greenville, N. C.	58.5

NOTE.—Two samples of vegetables were tested for individuals, but are not included in above chart.

TABLE V.—SHOWING NUMBER AND AVERAGE PER CENT OF GERMINATION OF VEGETABLE SEED SAMPLES TESTED, ACCORDING TO WHOLESALE DEALERS.

Wholesale Dealer.	Number of Samples Tested.	Average Per Cent of Germination.
W. W. Barnard Co., Chicago, Ill.....	3	78.00
J. Bolgiano & Son, Baltimore, Md.....	3	81.67
Robert Buist Co., Philadelphia, Pa.....	14	66.04
Crosman Bros. Co., Rochester, N. Y.....	27	61.37
Diggs & Beadles, Richmond, Va.....	1	87.50
D. M. Ferry & Co., Detroit, Mich.....	64	84.24
Lake Shore Seed Co., Dunkirk, N. Y.....	30	74.38
D. Landreth Seed Co., Bristol, Pa.....	18	82.33
Leonard Seed Co., Chicago, Ill.....	2	92.75
L. L. May & Co., St. Paul, Minn.....	7	67.93
J. B. Rice Seed Co., Cambridge, N. Y.....	10	54.70
T. W. Wood & Sons, Richmond, Va.....	14	76.32

CONCLUSION.

It is safe to assume that the seed dealers of the State desire to sell only pure and unadulterated seed; it is also safe to assume that the farmers of the State are demanding only such seed for planting. But, in order to bring about the desired conditions, there must be a mutual demand on the part of the planter and the seller of seed.

It is clear, of course, that every seedsman must get his seeds from some man's farm, and can sell to one planter only such seed as he gets from another planter. It will be seen, therefore, that all of the sins of the seed trade should not be laid at the door of the seedsman, notwithstanding the many crimes that cannot be traced beyond this point.

If John Smith, of Piedmont, N. C., chooses to cut and thresh a field of red clover infested with dodder, and sell the seed to seedsmen of his section, what can the seedsmen do but sell William Jones dodder infested clover seed? The crime was committed, not by the seedsman, but by John Smith when the seed left his farm, and the seedsman became an accomplice when he received the seed and passed them on to William Jones to be spread over his farm.

It is apparent, therefore, that in order to correct the evils of the seed trade, the farmer himself must be reckoned with; and the seed dealer should receive no seed from him without a guarantee of its purity and freedom from pernicious weeds, unless he intends to reclean, test, and guarantee them before exposing them for sale.

The North Carolina farmer who sells seeds should feel that he is doing his neighbor more harm by selling him, through the seed house, clover seed infested with dodder, for example, than he would by selling him inferior meat or damaged grain through the market. When a farmer assumes this attitude towards his fellow farmer, he then has a right to demand that his neighbor treat him likewise. There is little doubt that the large majority of our farmers would no sooner sell dodder-infested seed than they would sell a hog sick of cholera. But here and there a careless farmer is found who does not appreciate the importance of clean, pure seed; hence the note of caution sounded above.

The Department stands ready at any time to analyze and test any seed for any farmer or any seedsman of the State, prior to their offering such seed for sale to the general public. The Department, therefore, urges these two parties to the seed trade to take advantage of this opportunity, and thus eliminate, as far as possible, the multitude of agricultural sins that are now reducing the crop yields of the State and forcing the consumer to import millions of dollars worth of foodstuffs that might be grown at home.

It is interesting to note in this connection how effectively the pure seed law is working in this State. During the year 1910-11 an average of one seed sample in every sixteen was found to be adulterated. During the year 1911-12 only one sample in twenty-four was found to be adulterated. During the year 1912-13 the adulteration of agricultural seeds in this State was reduced to the remarkable figure of one sample in every 79.6. We confidently expect next year to reveal not more than one sample in every one hundred carrying adulterations.

LEAF TOBACCO SALES FOR JULY, 1913.

Pounds sold for producers, first hand.....	1,335,018
Pounds sold for dealers.....	76,841
Pounds sold for warehouses.....	47,118
Total	1,458,977

LEAF TOBACCO SALES FOR THE YEAR,

August, 1912-August, 1913.

Pounds sold for producers, first hand.....	133,037,451
Pounds sold for dealers.....	7,779,935
Pounds sold for warehouses.....	4,198,297
Total	145,015,683

THE BULLETIN

OF THE

NORTH CAROLINA

DEPARTMENT OF AGRICULTURE,

RALEIGH.

Vol. 34, No. 10.

OCTOBER, 1913.

Whole No. 189.

I. ANALYSES OF FERTILIZERS { FALL SEASON, 1912.
SPRING SEASON, 1913.

II. ANALYSES OF COTTON-SEED MEAL.

III. REGISTRATION OF FERTILIZERS.

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‡Assigned by the Bureau of Plant Industry, United States Department of Agriculture.

HON. W. A. GRAHAM,

Commissioner of Agriculture.

SIR:—I submit herewith analyses of fertilizers and cotton-seed meal made in the laboratory of samples collected during the past fall and spring. These analyses show fertilizers and meals to be about as heretofore, and to be, generally, what was claimed for them. I recommend that it be issued as the October BULLETIN.

Very respectfully,

B. W. KILGORE,

State Chemist.

Approved for printing:

W. A. GRAHAM,

Commissioner.

I. ANALYSES OF FERTILIZERS, FALL SEASON, 1912; SPRING SEASON, 1913.

By B. W. KILGORE,
W. G. HAYWOOD, J. M. PICKEL, J. Q. JACKSON, AND E. S. DEWAR.

The analyses presented in this BULLETIN are of samples collected by the fertilizer inspectors of the Department, under the direction of the Commissioner of Agriculture, during fall months of 1912 and the spring months of 1913. They should receive the careful study of every farmer in the State who uses fertilizers, as by comparing the analyses in the BULLETIN with the claims made for the fertilizers actually used, the farmer can know by or before the time fertilizers are put in the ground whether or not they contain the fertilizing constituents in the amounts they were claimed to be present.

TERMS USED IN ANALYSES.

Water-soluble Phosphoric Acid.—Phosphate rock, as dug from the mines, mainly in South Carolina, Florida, and Tennessee, is the chief source of phosphoric acid in fertilizers.

In its raw, or natural, state the phosphate has three parts of lime united to the phosphoric acid (called by chemists tricalcium phosphate). This is very insoluble in water and is not in condition to be taken up readily by plants. In order to render it soluble in water and fit for plant food, the rock is finely ground and treated with sulphuric acid, which acts upon it in such a way as to take from the three-lime phosphate two parts of its lime, thus leaving only one part of lime united to the phosphoric acid. This one-lime phosphate is what is known as water-soluble phosphoric acid.

Reverted Phosphoric Acid.—On long standing some of this water-soluble phosphoric acid has a tendency to take lime from other substances in contact with it, and to become somewhat less soluble. This latter is known as reverted or gone-back phosphoric acid. This is thought to contain two parts of lime in combination with the phosphoric acid, and is thus an intermediate product between water-soluble and the original rock.

Water-soluble phosphoric acid is considered somewhat more valuable than reverted, because it becomes better distributed in the soil as a consequence of its solubility in water.

Available Phosphoric Acid is made up of the water-soluble and reverted; it is the sum of these two.

Water Soluble Ammonia.—The main materials furnishing ammonia in fertilizers are nitrate of soda, sulphate of ammonia, cotton-seed meal, dried blood, tankage, and fish scrap. The first two of these

(nitrate of soda and sulphate of ammonia) are easily soluble in water and become well distributed in the soil where plant roots can get at them. They are, especially the nitrate of soda, ready to be taken up by plants, and are therefore quick-acting forms of ammonia. It is mainly the ammonia from nitrate of soda and sulphate of ammonia that will be designated under the heading of water-soluble ammonia.

Organic Ammonia.—The ammonia in cotton-seed meal, dried blood, tankage, fish scrap, and so on, is included under this heading. These materials are insoluble in water, and before they can feed plants they must decay and have their ammonia changed, by the aid of the bacteria of the soil, to nitrates, similar to nitrate of soda.

They are valuable then as plant food in proportion to their content of ammonia, and the rapidity with which they decay in the soil, or rather the rate of decay, will determine the quickness of their action as fertilizers. With short season, quick-growing crops, quickness of action is an important consideration, but with crops occupying the land during the greater portion, or all, of the growing season, it is better to have a fertilizer that will become available more slowly, so as to feed the plant till maturity. Cotton-seed meal and dried blood decompose fairly rapidly, but will last the greater portion, if not all, of the growing season in this State. While cotton seed and tankage will last longer than meal and blood, none of these act so quickly, or give out so soon, as nitrate of soda and sulphate of ammonia.

Total Ammonia is made up of the water-soluble and organic; it is the sum of these two.

The farmer should suit, as far as possible, the kind of ammonia to his different crops, and a study of the forms of ammonia as given in the tables of analyses will help him to do this.

FORM OF POTASH IN TOBACCO FERTILIZERS.

Tobacco growers are becoming yearly more disposed to know the form of potash, whether from kainit, muriate or sulphate, which enters into their tobacco fertilizers. Considerable work of this kind has been done for individuals, and we now determine the form of potash in all tobacco brands, for the benefit of tobacco growers.

The term potash from muriate, as reported in the analyses, does not mean, necessarily, that the potash was supplied by muriate of potash. Sulphate or some other potash salt may have been used, but in all fertilizers where the term potash from muriate is used, there is enough chlorine present to combine with all the potash, though it may have come from salt in tankage, kainit, or karnalite. As the objection to the use of muriate of potash in tobacco fertilizers arises from the chlorine present, it does not matter whether this substance is present in common salt or potash-furnishing materials.

The use of sulphate of potash where there is chlorine present in the other ingredients of the fertilizer will not prevent the injurious effect

of the chlorine. The term potash from muriate in our analyses, therefore, means that there is sufficient chlorine present in the fertilizer from all sources to combine with the potash to the extent indicated by the analyses.

VALUATIONS.

To have a basis for comparing the values of different fertilizer materials and fertilizers, it is necessary to assign prices to the three valuable constituents of fertilizers—ammonia, phosphoric acid, and potash. These figures, expressing relative value per ton, are not intended to represent crop-producing power, or agricultural value, but are estimates of the commercial value of ammonia, phosphoric acid and potash in the materials supplying them. These values are only approximate, as the cost of fertilizing materials is liable to change as other commercial products are, but they are believed to fairly represent the cost of making and putting fertilizers on the market. They are based on a careful examination of trade conditions, wholesale and retail, and upon quotations of manufacturers.

Relative value per ton, or the figures showing this, represents the prices on board the cars at the factory, in retail lots of five tons or less, for cash.

To make a complete fertilizer the factories have to mix together in proper proportions materials containing ammonia, phosphoric acid and potash. This costs something. For this reason it is thought well to have two sets of valuations—one for the raw or unmixed materials, such as acid phosphate, kainit, cotton-seed meal, etc., and one for mixed fertilizers.

The values used last season were:

VALUATIONS FOR 1912.

In Unmixed or Raw Materials.

For phosphoric acid in acid phosphate.....	4	cents per pound.
For phosphoric acid in bone meal, basic slag, and Peruvian guano	3½	cents per pound.
For nitrogen	19½	cents per pound.
For potash	4	cents per pound.

In Mixed Fertilizers.

For phosphoric acid	4½	cents per pound.
For nitrogen	21	cents per pound.
For potash	5	cents per pound.

VALUATIONS FOR 1913.

In Unmixed or Raw Materials.

For phosphoric acid in acid phosphate.....	4	cents per pound.
For phosphoric acid in bone meal and Peruvian Guano.	3½	cents per pound.
For phosphoric acid in basic slag.....	4	cents per pound.
For nitrogen	19½	cents per pound.
For potash	4	cents per pound.

In Mixed Fertilizers.

For phosphoric acid	4½ cents per pound.
For nitrogen	21 cents per pound.
For potash	5 cents per pound.

HOW RELATIVE VALUE IS CALCULATED.

In the calculation of relative value it is only necessary to remember that so many per cent means the same number of pounds per hundred, and that there are twenty hundred pounds in one ton (2,000 pounds).

With an 8-2-1.65 goods, which means that the fertilizer contains available phosphoric acid 8 per cent, potash 2 per cent, and nitrogen 1.65 per cent, the calculation is made as follows:

<i>Percentage or Lbs. in 100 Lbs.</i>	<i>Value Per 100 Lbs.</i>	<i>Value Per Ton, 2,000 Lbs.</i>
8 pounds available phosphoric acid at 4½ cents...	$0.36 \times 20 =$	\$ 7.20
2 pounds potash at 5 cents.....	$0.10 \times 20 =$	2.00
1.65 pounds nitrogen at 21 cents.....	$0.347 \times 20 =$	6.95
Total value.....	$0.817 \times 20 =$	\$16.14

Freight and merchant's commission must be added to these prices.

Laboratory Number.	Name and Address of Manufacturer.	Name of Brand.	Where Sampled.	Percentage Composition or Parts per 100.						Relative Value per Ton at Factory.	
				Available Phosphoric Acid.	Water-soluble Nitrogen.	Organic Nitrogen.	Total Nitrogen.	Equivalent to Ammonia.	Total Potash.		
MIXED FERTILIZERS.											
	Brands claiming			8.00				.82	1.00	3.00	\$ 13.64
1515	Union Guano Co., Winston, N. C.	Sunrise Ammoniated Guano	Rural Hall	9.22	.43	.50		.93	1.13	2.79	14.99
1368	Va.-Car. Chemical Co., Richmond, Va.	Bigelow's Crop Guano	Hendersonville	10.00	.33	.60		.93	1.13	3.31	16.22
1410	do	V.-C. C. Co.'s The Harvester	Burlington	9.89	.49	.36		.85	1.03	2.76	15.23
	Brand claiming			8.00				.82	1.00	4.00	15.04
1536	Imperial Co., Norfolk, Va.	Imperial Fish and Bone Grain Grower	Statesville	8.71	.47	.58		1.05	1.28	4.05	16.30
	Brand claiming			8.00				1.00	1.22	4.00	15.40
1525	Robertson Fertilizer Co., Norfolk, Va.	Ten Strike Soluble Crop Product	Troutmans	8.07	.47	.72		1.19	1.45	3.89	16.15
	Brands claiming			8.00				1.65	2.00	2.00	16.13
1356	American Agricultural Chemical Co., New York, N. Y.	Detrick's Fish Mixture	Pinnacle	8.90	1.33	.54		1.87	2.27	2.02	17.88
1478	do	Lazaretto Crop Grower	Salisbury	8.73	1.29	.50		1.79	2.18	2.01	17.41
1380	do	Zell's Fish Guano	Mooresville	8.55	1.15	.62		1.67	2.03	2.51	17.22
1407	American Fertilizer Co., Norfolk, Va.	Bone and Peruvian Guano	Wadesboro	9.76	1.01	.42		1.43	1.74	1.64	16.43
1371	Asheville Packing Co., Asheville, N. C.	Asheville Packing Co.'s Complete Fertilizer	Asheville	6.71	.57	1.16		1.73	2.10	2.78	16.08
1553	Atlantic Chemical Co., Norfolk, Va.	Atlantic Special Wheat Fertilizer	Kings Mountain	7.80	.93	.68		1.61	1.96	2.00	15.78
1451	Baugh & Sons Co., Norfolk, Va.	Baugh's Animal Base and Potash Compound.	Statesville	8.06	.91	.96		1.87	2.27	2.08	17.19
1457	Caraleigh Phosphate and Fertilizer Works, Raleigh, N. C.	Elk Ammoniated Fertilizer	Waynesville	9.01	.69	.86		1.55	1.88	1.94	16.60
1443	Dixie Guano Co., Suffolk, Va.	Dixie Standard Guano	Roxboro	8.25	1.05	.86		1.91	2.32	2.24	17.69

ANALYSES OF COMMERCIAL FERTILIZERS—FALL SEASON, 1912.

Laboratory Number.	Name and Address of Manufacturer.	Name of Brand.	Where Sampled.	Percentage Composition or Parts per 100.						Relative Value per Ton at Factory.
				Available Phosphoric Acid.	Water-soluble Nitrogen.	Organic Nitrogen.	Total Nitrogen.	Equivalent to Ammonia.	Total Potash.	
MIXED FERTILIZERS.										
Brands claiming.....										
1489	Imperial Co., Norfolk, Va.	Champion Guano.....	Mount Airy.....	8.00	.....	.....	1.65	2.00	2.00	\$ 16.13
1498	Lister's Agricultural Chemical Works, Newark, N. J.	Lister's Success Fertilizer.....	Siler City.....	8.39	1.35	.50	1.85	2.25	2.00	17.32
1396	Marietta Fertilizer Co., Atlanta, Ga.	Marietta Solid South.....	Mount Airy.....	9.14	1.01	.70	1.71	2.08	2.49	17.90
1450	Navassa Guano Co., Wilmington, N. C.	Navassa Grain Fertilizer.....	Statesville.....	6.33	.53	.98	1.51	1.84	2.56	15.60
1524	Norfolk Fertilizer Co., Norfolk, Va.	Oriana Crop Grower.....	Concord.....	9.47	1.13	.32	1.45	1.78	2.01	16.65
1441	Patapsco Guano Co., Baltimore, Md.	Sea Gull Ammoniated Guano.....	Roxboro.....	7.97	1.08	.67	1.75	2.13	2.03	16.55
1412	Piedmont-Mount Airy Guano Co., Baltimore, Md.	Piedmont Bone and Peruvian Mixture.....	Burlington.....	8.97	.95	.74	1.69	2.05	2.11	17.28
1353	Pocahontas Guano Co., Lynchburg, Va.	Carrington Banner Brand Guano.....	Pinnacle.....	9.47	.39	.88	1.27	1.54	3.12	16.98
1490	Powhatan Chemical Co., Richmond, Va.	Magic Tobacco Grower.....	Mount Airy.....	8.36	1.57	1.38	2.95	3.59	1.98	21.89
1504	Reidsville Fertilizer Co., Reidsville, N. C.	Banner Fertilizer.....	Asheboro.....	7.89	.51	1.32	1.83	2.22	2.46	17.25
1472	Richmond Guano Co., Richmond, Va.	Premium Brand Fertilizer.....	Huntersville.....	8.00	.61	1.22	1.83	2.22	2.35	17.21
1479	Robertson Fertilizer Co., Norfolk, Va.	Double Dollar Soluble Guano.....	Mocksville.....	8.68	.89	.74	1.63	1.98	2.06	16.72
1440	Royster, F. S., Guano Co., Norfolk, Va.	Farmers' Bone Fertilizer.....	Durham.....	8.14	.71	.96	1.67	2.03	1.95	16.29
1425	do.....	Royster's Special Wheat Fertilizer.....	Maiden.....	8.17	1.05	.58	1.63	1.98	2.07	16.27
1369	do.....	do.....	Hendersonville.....	8.04	.93	.78	1.71	2.08	2.05	16.47
1406	Southern Cotton Oil Co., Monroe, N. C.	Gloria Standard Fertilizer.....	Monroe.....	8.70	.87	.88	1.75	2.13	1.89	17.07
				9.82	.11	1.53	1.69	2.05	2.54	18.48

1550	Southern Cotton Oil Co., Shelby, N. C.	Double Two	Shelby	8.00	.77	1.18	1.95	2.37	2.43	17.82
1424	Swift Fertilizer Works, Atlanta, Ga.	Swift's Red Steer Standard Grade	Maiden	7.81	.83	.86	1.69	2.05	1.86	15.99
1344	Tuscarora Fertilizer Co., Atlanta, Ga.	Tuscarora Standard	Concord	7.88	.91	.78	1.69	2.05	1.64	15.83
1513	Union Guano Co., Winston, N. C.	Fish Brand Ammoniated Guano	King	8.81	.65	.64	1.29	1.57	1.81	15.16
1469	do.	Old Honesty Guano	Davidson	9.73	.82	.48	1.30	1.58	1.57	15.79
1556	Venable Fertilizer Co., Richmond, Va.	Planters' Bone Fertilizer	Kings Mountain	8.38	.53	1.24	1.77	2.15	2.42	17.40
1456	Va.-Car. Chemical Co., Richmond, Va.	Allison & Addison's Anchor Brand Fertilizer	Marshall	10.92	1.23	.36	1.59	1.93	1.77	18.25
1468	do.	Davie & Whitte's Owl Brand Guano	Charlotte	7.68	.75	1.12	1.87	2.27	2.48	16.25
1405	do.	Durham Fertilizer Co.'s Genuine Bone and Peruvian Guano	Albemarle	8.58	1.15	.50	1.65	2.01	2.20	16.85
1448	do.	Old Dominion Guano Co.'s Soluble Guano	Taylorsville	8.26	1.03	1.04	2.07	2.52	2.19	18.82
1521	do.	Old Dominion Guano Co.'s Soluble Tobacco Guano	Walnut Cove	7.76	.35	1.18	1.53	1.86	2.69	16.02
1352	do.	Southern Chemical Co.'s Standard Guano	North Wilkesboro	10.23	.31	.44	.75	.91	1.62	13.98
1373	do.	Travers & Co.'s Beef, Blood, and Bone Fertilizer	Pittsboro	8.47	1.01	.54	1.55	1.88	2.01	16.14
1409	do.	Travers & Co.'s National Fertilizer	Graham	8.57	.91	.58	1.49	1.81	1.90	15.91
1514	do.	V.-C. C. Co.'s Plant Food C. S. M.	Pilot Mountain	7.65	.23	1.44	1.67	2.03	2.71	16.61
Brand claiming				8.00			2.06	2.50	2.00	17.85
1449	Lister's Agricultural Chemical Works, Newark, N. J.	Lister's Ammoniated Dissolved Bone Phosphate	Loray	8.62	1.29	1.02	2.31	2.81	2.09	19.55
Brands claiming				8.00			2.06	2.50	3.00	19.15
1334	Patapasco Guano Co., Baltimore, Md.	Unicorn Guano	North Wilkesboro	9.33	1.93	.34	2.27	2.76	3.00	20.93
1395	Va.-Car. Chemical Co., Richmond, Va.	Durham Fertilizer Co.'s N. C. Official Farmers' Alliance Guano	Pilot Mountain	8.40	1.23	.74	1.97	2.40	3.60	19.43
Brand claiming				8.00			2.47	3.00	2.50	20.07
1375	Acme Mfg. Co., Wilmington, N. C.	Acme Fertilizer	Sanford	7.33	1.51	1.52	3.03	3.68	2.58	21.90
Brands claiming				8.00			2.47	3.00	3.00	20.57
1364	American Agricultural Chemical Co., New York, N. Y.	Lazaretto Challenge Fertilizer	Hickory	9.04	1.57	.74	2.31	2.81	2.98	20.82
1346	do.	Zell's Reliance High Grade Manure	China Grove	8.54	1.49	.78	2.27	2.76	3.14	20.36
1408	American Fertilizer Co., Norfolk, Va.	American Eagle Guano	Wadesboro	9.57	1.19	1.00	2.19	2.66	2.72	20.53

ANALYSES OF COMMERCIAL FERTILIZERS—FALL SEASON, 1912.

Laboratory Number.	Name and Address of Manufacturer.	Name of Brand.	Where Sampled.	Percentage Composition or Parts per 100.						Relative Value per Ton at Factory.
				Available Phosphoric Acid.	Water-soluble Nitrogen.	Organic Nitrogen.	Total Nitrogen.	Equivalent to Ammonia.	Total Potash.	
MIXED FERTILIZERS.										
Brands claiming										
1502	Baugh & Sons Co., Norfolk, Va.	Baugh's Grand Rapid High Grade Guano.	Aberdeen	8.00	1.83	.78	2.47	3.00	3.00	\$20.57
1374	Carolina Union Fertilizer Co., Norfolk, Va.	Carolina Union 3-8-3.	Siler City	8.05	.99	1.36	2.61	3.17	3.30	21.51
1394	Columbia Guano Co., Norfolk, Va.	Hyco Tobacco Guano	Wilson	8.37	1.79	.72	2.35	2.86	2.78	20.18
1363	do.	Olympia Cotton Guano.	Hickory	8.65	1.59	.86	2.51	3.05	2.91	21.04
1520	Imperial Co., Norfolk, Va.	Tobacco Guano.	Stokesdale	8.17	1.81	.40	2.45	2.98	2.97	20.61
1397	Marietta Fertilizer Co., Atlanta, Ga.	Marietta Pride of Piedmont	Mount Airy	8.92	.43	1.92	2.33	2.83	3.31	21.12
1545	Royster, F. S., Guano Co., Norfolk, Va.	Bonanza Tobacco Guano	Hickory	7.60	1.55	.90	2.43	2.95	4.13	21.18
1345	do.	Marlboro High Grade Cotton Grower	China Grove	8.31	1.63	.86	2.49	2.98	3.14	20.91
1554	Swift Fertilizer Works, Atlanta, Ga.	Ruralist High Grade.	Shelby	8.23	1.15	1.04	2.49	3.03	3.21	21.07
1555	Tuscarora Fertilizer Co., Atlanta, Ga.	Tuscarora 8-3-3.	Gastonia	8.51	1.13	.92	2.19	2.66	2.65	19.51
1422	Va.-Car. Chemical Co., Richmond, Va.	Allison & Addison's A. A. Guano.	Lincolnton	8.50	1.59	.96	2.05	2.49	3.75	20.01
1467	do.	Durham Fertilizer Co.'s Gold Medal Brand Guano.	Charlotte	9.08	1.17	.78	2.55	3.10	3.15	22.03
1367	do.	Old Dominion Guano Co.'s Farmers' Friend H. G. Fertilizer.	Brevard	9.44	2.84	.39	1.95	2.37	3.20	19.89
1436	do.	Tinsley's H. G. Tobacco Guano.	Roxboro	8.13	1.73	.76	3.23	3.93	5.79	26.65
Brand claiming				9.79			2.49	3.03	3.09	22.36
				8.00			2.47	3.00	5.00	22.57
1393	Royster, F. S., Guano Co., Norfolk, Va.	Eagle's Special Tobacco Guano.	Wilson	8.49	1.69	.74	2.43	2.95	5.11	22.96

Brand claiming			8.00		3.11	3.78	7.00	27.26
1392	Royster, F. S., Guano Co., Norfolk, Va.	Wilson	8.15	2.35	1.18	4.29	6.14	28.30
Brand claiming	Royster's Best Guano.		8.50			2.75	2.00	19.14
1438	Va.-Car. Chemical Co., Richmond, Va.	Durham	8.42	1.47	.30	2.15	2.20	17.21
Brand claiming	Allison & Addison's Anchor Brand Tobacco Fertilizer.		9.00			1.00	2.00	13.74
1439	Rasin-Monumental Co., Baltimore, Md.	Hillsboro.	9.53	.33	.48	.81	.98	14.12
Brand claiming	Baltimore Special Mixture		9.00			1.00	1.22	2.00
1526	Robertson Fertilizer Co., Norfolk, Va.	Troutman	9.25	.45	.60	1.09	1.33	2.17
Brands claiming	Robertson Blood and Bone Mixture		9.00			.82	1.00	3.00
1557	Atlantic Chemical Co., Norfolk, Va.	Kings Mountain	8.90	.43	.44	.87	1.06	2.81
1355	Carolina Warehouse Co., Salisbury, N. C.	North Wilkesboro	8.04	.38	.76	1.59	1.93	4.10
1361	do	Lincolnton	8.98	.03	1.72	1.75	2.13	1.78
1362	Columbia Guano Co., Norfolk, Va.	Rutherfordton	9.47	.57	.48	1.05	1.28	2.49
1379	Navassa Guano Co., Wilmington, N. C.	Mooreville	10.00	.25	.46	.71	.86	3.04
1442	Patapsco Guano Co., Baltimore, Md.	Roxboro	10.44	.33	.42	.75	.91	2.22
1333	Royster, F. S., Guano Co., Norfolk, Va.	Elkin	10.00	.55	.35	.90	1.09	2.95
1537	Va.-Car. Chemical Co., Richmond, Va.	V.-C. C. Co.'s McCormick's Wheat and Grain Guano.	8.82	.53	.44	.97	1.18	3.00
Brand claiming	Royster's Grain Guano	Statesville	9.00			1.65	2.00	1.00
1437	Va.-Car. Chemical Co., Richmond, Va.	Durham	8.65	1.09	.32	1.41	1.71	1.31
Brand claiming	Allison & Addison's Star Brand		9.00			1.65	2.00	3.00
1470	Union Guano Co., Winston, N. C.	Cornelius	8.87	1.29	.62	1.91	2.32	3.95
Brand claiming	Farmers' Blood and Bone Guano.		9.00			1.85	2.25	1.00
1473	Bradley Fertilizer Co., Charleston, S. C.	Charlotte	10.17	.85	1.18	2.03	2.47	1.27
Brand claiming	Standard Sea Fowl Guano		9.00			1.85	2.25	4.00
1398	Berkley Chemical Co., Norfolk, Va.	Pilot Mountain	9.09	1.53	.08	2.21	2.69	3.93
	Monitor Animal Bone Fertilizer							21.39

ANALYSES OF COMMERCIAL FERTILIZERS—FALL SEASON, 1912.

Name and Address of Manufacturer.		Name of Brand.	Where Sampled.	Percentage Composition or Parts per 100.					Relative Value per Ton at Factory.	
Laboratory Number.				Available Phosphoric Acid.	Water-soluble Nitrogen.	Organic Nitrogen.	Total Nitrogen.	Equivalent to Ammonia.		Potash.
MIXED FERTILIZERS.										
	Brand claiming.			9.00			2.47	3.00	3.00	\$ 21.47
1503	Pocahontas Guano Co., Lynchburg, Va.	Pocahontas Special Tobacco Fertilizer Grower.		8.54	.99	1.44	2.43	2.95	3.44	21.33
	Brand claiming.			10.00			.82	1.00	2.50	14.94
1411	Va.-Car. Chemical Co., Richmond, Va.	Ford's Wheat and Corn Guano.	Burlington.	9.92	.43	.26	.69	.84	4.19	17.02
	Brand claiming.			10.00			.82	1.00	3.00	15.44
1471	Swift Fertilizer Works, Atlanta, Ga.	Swift's Planters' Special Standard Grade Guano.	Mooreville.	10.47	.55	.56	1.11	1.35	2.55	16.63
	Brands claiming.			10.00			1.65	2.00	2.00	17.93
1370	Asheville Packing Co., Asheville, N. C.	Asheville Packing Co.'s Complete Fertilizer.	Asheville.	8.99	.99	1.20	2.19	2.66	2.93	20.21
1527	Union Guano Co., Winston, N. C.	Mule Brand Guano.	Croft.	9.83	.47	.98	1.45	1.76	2.59	17.53
	Brands claiming.			8.00					4.00	11.20
1474	American Fertilizer Co., Norfolk, Va.	High Grade Mixture for Wheat.	Charlotte.	10.72					3.96	13.61
1522	Armour Fertilizer Works, Atlanta, Ga.	Armour's Phosphate and Potash No. 3.	Elkin.	8.35					3.51	11.02
1336	Atlantic Chemical Co., Norfolk, Va.	Atlantic Bone and Potash Mixture.	Elkin.	7.99					3.83	11.02
1357	Carolina Warehouse Co., Salisbury, N. C.	Farmers' Union 8-4 Bone and Potash.	North Wilkesboro.	8.90					5.61	13.62
1399	Navassa Guano Co., Wilmington, N. C.	Navassa Dissolved Bone with Potash.	Mount Airy.	11.99					2.79	13.58
1530	Norfolk Fertilizer Co., Norfolk, Va.	Mayodan Valley Wheat Grower.	Concord.	9.97					4.46	13.43
1493	Richmond Guano Co., Richmond, Va.	Winter Grain and Grass Grower.	Mount Airy.	8.58					4.06	11.78

1496	Robertson Fertilizer Co., Norfolk, Va.	Special Bone and Potash Mixture.	Crutchfield.	8.29	3.79	11.25
1337	Royster, F. S., Guano Co., Norfolk, Va.	Royster's 8-4 Bone and Potash Mixture.	Elkin.	7.81	3.57	10.60
1338	Swift Fertilizer Works, Atlanta, Ga.	Swift's Plantation Standard Grade Phosphate and Potash.	Elkin.	7.94	3.60	10.75
1516	Union Guano Co., Winston, N. C.	Union Wheat Mixture.	Rural Hall.	10.90	2.54	12.35
1339	Va.-Car. Chemical Co., Richmond, Va.	Durham Fertilizer Co.'s Carr's Special Wheat Grower.	Elkin.	10.29	3.91	13.17
1359	do.	Jones' Grain Special.	North Wilkesboro	9.80	3.48	12.30
1418	do.	Old Dominion Guano Co.'s Miller's Special Wheat Mixture.	Burlington.	8.57	4.09	11.80
1341	do.	Southern Chemical Co.'s Click's Special Wheat Compound.	Elkin.	10.67	3.08	12.68
Brands claiming						
1538	American Agricultural Chemical Co., New York, N. Y.	Zell's Bone and Potash.	Statesville.	10.00	2.00	11.00
1495	Armour Fertilizer Works, Atlanta, Ga.	Armour's Phosphate and Potash Fertilizer.	Elkin.	10.83	2.41	12.16
1462	Asheville Packing Co., Asheville, N. C.	Asheville Packing Co.'s Special XXX Wheat Grower.	Asheville.	9.94	1.91	10.86
1335	Atlantic Chemical Co., Norfolk, Va.	Atlantic Bone and Potash Mixture.	Elkin.	11.60	2.73	13.17
1452	Baugh & Sons Co., Norfolk, Va.	Baugh's Soluble Alkaline Superphosphate.	Elkin.	9.99	2.04	11.03
1499	Bryant Fertilizer Co., Alexandria, Va.	Bryant's Bone and Potash Mixture.	Statesville.	9.21	3.46	11.75
1540	Craven Chemical Co., New Bern, N. C.	Trent Bone and Potash.	Siler City.	12.14	1.31	12.24
1481	Farmers Guano Co., Raleigh, N. C.	Century Bone and Potash Mixture.	Statesville.	8.45	1.81	9.41
1508	Imperial Co., Norfolk, Va.	Bone and Potash.	Cooleemee.	10.49	2.28	11.72
1549	do.	Virginia Gray Mixture.	Mount Gilcard.	12.02	2.24	13.06
1360	Navassa Guano Co., Wilmington, N. C.	Navassa Dissolved Bone with Potash.	Hickory.	10.90	2.58	12.39
1505	Pocomoke Guano Co., Norfolk, Va.	10-2 Potash Mixture.	Rutherfordton.	9.83	2.16	11.01
1482	Powhatan Chemical Co., Richmond, Va.	Bone and Potash Mixture.	Troy.	9.94	1.86	10.81
1480	Robertson Fertilizer Co., Norfolk, Va.	Level Run Dissolved Bone and Potash.	Mocksville.	10.07	2.34	11.40
1454	Royster, F. S., Guano Co., Norfolk, Va.	Royster's Bone and Potash Mixture.	Mocksville.	10.57	2.07	11.58
1548	Swift Fertilizer Works, Atlanta, Ga.	Swift's Field and Farm Standard Grade Phosphate and Potash.	Stony Point.	10.06	2.00	11.05
1426	do.	Swift's Wheat Grower Standard Grade Phosphate and Potash.	Morganton.	10.18	1.63	10.79
			Maiden.	10.23	1.94	11.15

ANALYSES OF COMMERCIAL FERTILIZERS—FALL SEASON, 1912.

Laboratory Number.	Name and Address of Manufacturer.	Name of Brand.	Where Sampled.	Percentage Composition or Parts per 100.					Relative Value per Ton at Factory.	
				Available Phosphoric Acid.	Water-soluble Nitrogen.	Organic Nitrogen.	Total Nitrogen.	Equivalent to Ammonia.		Total Potash.
MIXED FERTILIZERS.										
Brands claiming				10.00					2.00	\$ 11.00
1414	Union Guano Co., Winston, N. C.	Union Bone and Potash.	Siler City	10.76					1.64	11.32
1427	Va.-Car. Chemical Co., Richmond, Va.	Durham Fertilizer Co.'s Blue Ridge Wheat Grower.	Alexis	10.67					1.74	11.34
1460	do.	Durham Fertilizer Co.'s Standard Wheat Grower.	Clyde	13.14					1.36	13.19
1340	do.	Lynchburg Guano Co.'s Dissolved Bone and Potash.	Elkin	10.51					2.13	11.60
1419	do.	Old Dominion Guano Co.'s Alkaline Bone and Potash.	Burlington	10.71					2.19	11.83
1445	do.	Southern Chemical Co.'s Mammoth Wheat Grower.	Roxboro	10.57					2.20	11.71
1342	do.	Travers & Co.'s Capitol Bone and Potash.	Elkin	9.67					2.31	11.01
1403	do.	V.-C. C. Co.'s Dissolved Bone and Potash.	Pilot Mountain	10.12					1.92	11.03
Brand claiming				10.00					2.25	11.25
1558	Navassa Guano Co., Wilmington, N. C.	Navassa Wheat Mixture	Shelby	10.40					2.13	11.49
Brand claiming				10.00					3.00	12.00
1551	Va.-Car. Chemical Co., Richmond, Va.	Durham Fertilizer Co.'s Farmers' Diamond Wheat Mixture.	Shelby	9.49					3.44	11.98
Brands claiming				10.00					4.00	13.00
1517	American Fertilizer Co., Norfolk, Va.	Double Dissolved Bone and Potash	Rural Hall	10.33					3.06	12.36
1388	American Agricultural Chemical Co., New York, N. Y.	Detrick's High Grade Bone and Potash.	Mount Airy	10.87					3.62	13.40
1444	do.	Zell's High Grade Bone and Potash	Hillsboro	10.79					3.48	11.19

1494	do.	do.	Mount Airy	10.25	4.02	13.24
1461	Asheville Packing Co., Asheville, N. C.	Asheville Packing Co.'s Special Potash Mixture.	Asheville	10.79	3.82	13.53
1559	Atlantic Chemical Co., Norfolk, Va.	Atlantic 10-4 Bone and Potash Mixture.	Kings Mountain.	10.16	3.83	12.97
1541	Baugh & Sons Co., Norfolk, Va.	Baugh's High Grade Potash Mixture.	Statesville.	9.95	4.29	13.24
1376	Caraleigh Phosphate and Fertilizer Works, Raleigh, N. C.	Special Bone and Potash Mixture.	Sanford	10.87	3.18	12.96
1347	Columbia Guano Co., Norfolk, Va.	Columbia 10-4 Bone and Potash Mixture	China Grove.	9.64	3.84	12.52
1509	Farmers Guano Co., Raleigh, N. C.	Special Bone and Potash.	Troy.	10.62	3.24	12.80
1507	Imperial Co., Norfolk, Va.	Catawba Wheat Grower.	Mount Gilend.	10.56	3.86	13.36
1539	do.	do.	Statesville.	10.59	4.33	13.86
1453	Navassa Guano Co., Wilmington, N. C.	Navassa Wheat and Grass Grower.	Statesville.	10.89	3.43	13.23
1506	Pocomoke Guano Co., Norfolk, Va.	Pocomoke Bone and Potash.	Troy.	10.32	3.69	12.98
1381	Richmond Guano Co., Richmond, Va.	Rex Bone and Potash Mixture.	Mooresville.	10.05	4.14	13.18
1529	Robertson Fertilizer Co., Norfolk, Va.	Skyscraper Bone and Potash.	Troutman.	10.09	3.92	13.00
1377	Royster, F. S., Guano Co., Norfolk, Va.	Royster's 10-4 Bone and Potash Mixture.	Pittsboro.	10.60	3.57	13.11
1459	Swift Fertilizer Works, Atlanta, Ga.	Swift's Farmers' Home H. G. Phosphate and Potash.	Clyde.	9.04	3.30	11.44
1349	Tuscarora Fertilizer Co., Atlanta, Ga.	Tuscarora Acid and Potash.	Concord.	9.00	3.31	11.41
1413	Union Guano Co., Winston, N. C.	Quaker Grain Mixture.	Siler City.	11.49	3.29	13.63
1547	do.	do.	Hickory.	10.55	3.69	13.18
1475	do.	Union 10-4 Bone and Potash.	Cornelius.	8.97	3.67	11.74
1401	United States Fertilizer Co., Baltimore, Md.	Farm Bell Special Mixture.	Mount Airy	10.50	4.22	13.67
1428	Va.-Car. Chemical Co., Richmond, Va.	Old Dominion Obelisk Brand Bone and Potash.	Iron.	10.90	3.23	13.04
1446	do.	Southern Chemical Co.'s Winner Grain Mixture.	Roxboro.	11.54	3.41	13.80
1416	do.	V.-C. C. Co.'s Special Potash Mixture.	Graham.	10.17	4.66	13.81
1378	do.	Va. State Fertilizer Co.'s XX Potash Mixture.	Pittsboro.	10.65	4.40	13.98
Brands claiming.				10.00	5.00	14.00
1383	Carolina Union Fertilizer Co., Norfolk, Va.	Carolina Union 10-5.	Mount Airy.	9.64	4.84	13.52

ANALYSES OF COMMERCIAL FERTILIZERS—FALL SEASON, 1912.

Laboratory Number.	Name and Address of Manufacturer.	Name of Brand.	Where Sampled.	Percentage Composition or Parts per 100.						Relative Value per Ton at Factory.
				Available Phosphoric Acid.	Water-soluble Nitrogen.	Organic Nitrogen.	Total Nitrogen.	Equivalent to Ammonia.	Potash.	
MIXED FERTILIZERS.										
Brands claiming										
1400	Navassa Guano Co., Wilmington, N. C.	Johnston County Bone and Potash	Mount Airy	10.00					5.00	\$ 14.00
1384	Royster, F. S., Guano Co., Norfolk, Va.	Royster's Bone and Potash Mixture 10-5.	Mount Airy	10.98					4.98	14.86
1476	Union Guano Co., Winston, N. C.	Union 10-5 Bone and Potash	Cornelius	10.26					4.58	13.81
1404	Va.-Car. Chemical Co., Richmond, Va.	Va. State Fertilizer Co.'s Mountain Bone and Potash.	Top Pilot Mountain	10.11					4.13	13.27
Brands claiming										
1372	Asheville Packing Co., Asheville, N. C.	Asheville Packing Co.'s Superior Potato and Wheat Fertilizer.	Asheville	9.64					6.35	15.03
1348	Royster, F. S., Guano Co., Norfolk, Va.	Royster's Bone and Potash Mixture	Concord	10.00					6.00	15.00
1402	United States Fertilizer Co., Baltimore, Md.	Farm Bell Acid and Potash	Mount Airy	12.87					4.56	16.14
Brands claiming										
1389	American Agricultural Chemical Co., New York, N. Y.	Detrick's High Grade Bone and Potash	Mount Airy	10.04					5.90	14.94
1358	Ober, G., & Sons Co., Baltimore, Md.	Ober's Standard Potash Compound	Pilot Mountain	11.71					5.95	16.49
1415	United States Fertilizer Co., Baltimore, Md.	Farm Bell Phospho-Potasso	Siler City	12.00					5.00	15.80
1385	Va.-Car. Chemical Co., Richmond, Va.	Goodman's Special Potash Mixture	Mount Airy	13.20					2.81	14.69
1417	do	V-C. C. Co.'s High Grade Potash Mix- ture.	Burlington	13.12					5.07	16.88
Brands claiming										
5312	Union Guano Co., Winston, N. C.	Union Dissolved Animal Bone	Winston	11.25					4.57	14.69
				14.57					4.31	17.42
				13.84					3.79	16.25
				13.00			2.06	2.50		20.35
				12.87			2.00	2.43		19.98

RAW OR UNMIXED FERTILIZER MATERIALS.

Brands claiming									
1483	Richmond Guano Co., Richmond, Va.	Old Homestead Dissolved Bone	Mocksville	12.00					9.60
1518	Union Guano Co., Winston, N. C.	Union Acid Phosphate	Rural Hall	12.13					9.70
Brands claiming				12.42					9.94
1464	Caraleigh Phosphate and Fertilizer Works, Raleigh, N. C.	Sterling Acid Phosphate	Waynesville	13.00					10.40
1487	Farmers Guano Co., Raleigh, N. C.	Farmers' Acid Phosphate	Coolemeec	14.15					11.32
1484	Richmond Guano Co., Richmond, Va.	Premium Dissolved Bone	Mocksville	15.97					12.68
1519	Va.-Car. Chemical Co., Richmond, Va.	Travers & Co.'s Standard Dissolved Bone	Elkin	13.33					10.66
Brands claiming				14.48					11.58
1447	American Agricultural Chemical Co., New York, N. Y.	Zell's Acid Phosphate	Hillsboro	14.00					11.20
1511	Imperial Co., Norfolk, Va.	High Grade Tennessee Acid Phosphate	Mount Gilthead	15.31					12.25
1510	Norfolk Fertilizer Co., Norfolk, Va.	Oriana 14 Per Cent Acid Phosphate	Troy	16.82					13.46
1430	Pocomoke Guano Co., Norfolk, Va.	Peerless Acid Phosphate	Maiden	14.14					11.31
1486	Powhatan Chemical Co., Richmond, Va.	High Grade Acid Phosphate	Mocksville	16.02					12.82
1429	Royster, F. S., Guano Co., Norfolk, Va.	Royster's 14 Per Cent Acid Phosphate	Maiden	14.24					11.39
1432	Swift Fertilizer Works, Atlanta, Ga.	Swift's Cultivator High Grade Acid Phosphate	Maiden	14.52					11.62
1543	Union Guano Co., Winston, N. C.	Union High Grade Acid Phosphate	Cornelius	14.18					11.34
1544	Va.-Car. Chemical Co., Richmond, Va.	Old Dominion High Grade Acid Phosphate	Statesville	14.56					11.65
1542	do.	Red Cross Acid Phosphate	Statesville	14.72					11.78
1465	do.	V.-C. C. Co.'s 14 Per Cent Acid Phosphate	Marshville	14.47					11.58
Brands claiming				15.37					12.30
1365	American Agricultural Chemical Co., New York, N. Y.	Lazaretto 16 Per Cent Acid Phosphate	Hickory	16.00					12.80
1497	Armour Fertilizer Works, Atlanta, Ga.	Armour's Acid Phosphate	Elkin	16.92					13.54
				16.77					13.42

ANALYSES OF COMMERCIAL FERTILIZERS—FALL SEASON, 1912.

Laboratory Number.	Name and Address of Manufacturer.	Name of Brand.	Where Sampled.	Percentage Composition or Parts per 100.						Relative Value per Ton at Factory.
				Available Phosphoric Acid.	Water-soluble Nitrogen.	Organic Nitrogen.	Total Nitrogen.	Equivalent to Ammonia.	Total Potash.	
RAW OR UNMIXED FERTILIZER MATERIALS.										
Brands claiming										
1463	Asheville Packing Co., Asheville, N. C.	Asheville Packing Co.'s High Grade Acid Phosphate.	Asheville.	16.00						\$ 12.80
1343	Atlantic Chemical Co., Norfolk, Va.	Atlantic High Grade Acid Phosphate.	Elkin.	17.27						13.82
1455	Baugh & Sons Co., Norfolk, Va.	Baugh's 16 Per Cent Acid Phosphate.	Statesville.	16.17						12.94
1560	Carolina Warehouse Co., Salisbury, N. C.	Farmers' Union 16 Per Cent Acid Phosphate.	Gastonia.	15.54						12.43
1512	Farmers Guano Co., Raleigh, N. C.	16 Per Cent Acid Phosphate.	Troy.	16.52						13.22
1533	Imperial Guano Co., Norfolk, Va.	High Grade Acid Phosphate.	Concord.	16.66						13.33
1366	Navassa Guano Co., Wilmington, N. C.	Navassa 16 Per Cent Acid Phosphate.	Rutherfordton.	17.09						13.67
1350	Patapsco Guano Co., Baltimore, Md.	Florida Soluble Phosphate.	China Grove.	16.01						12.83
1431	Pocomoke Guano Co., Norfolk, Va.	Superb Acid Phosphate.	Maiden.	17.07						13.66
1485	Powhatan Chemical Co., Richmond, Va.	Magie Dissolved Bone Phosphate.	Mocksville.	16.71						13.37
1351	Royster, F. S., Guano Co., Norfolk, Va.	Royster's High Grade 16 Per Cent Acid Phosphate.	Concord.	16.39						13.11
1433	Swift Fertilizer Works, Atlanta, Ga.	Swift's Special High Grade Acid Phosphate.	Maiden.	15.42						12.24
1500	Tuscarora Fertilizer Co., Atlanta, Ga.	Tuscarora Acid Phosphate.	Siler City.	16.20						12.96
1532	Union Guano Co., Winston, N. C.	Union 16 Per Cent Acid Phosphate.	Croft.	15.66						12.53
1382	Va.-Car. Chemical Co., Richmond, Va.	Davie & Whittle's Owl Brand High Grade Acid Phosphate.	Mooresville.	16.55						13.24
				16.25						13.00

1477	do.	Durham Fertilizer Co.'s Best Acid Phosphate.	Charlotte.	16.55			13.24
1435	do.	Southern Chemical Co.'s Comet 16 Per Cent Acid Phosphate.	Maiden.	16.36			13.09
1434	do.	V.-C. C. Co.'s 16 Per Cent Acid Phosphate.	Iron.	16.77			13.40
	Brands claiming						9.60
1535	Union Guano Co., Winston, N. C.	Genuine German Kainit.	Croft.				9.96
1391	Va.-Car. Chemical Co., Richmond, Va.	do.	Henderson.				10.08
1488	do.	do.	Salisbury.				10.03
	Brand claiming						38.40
1420	Va.-Car. Chemical Co., Richmond, Va.	Muriate of Potash.	Graham.				41.31
	Brands claiming						40.00
1523	German Kali Works, Baltimore, Md.	Muriate of Potash.	Elkin.				39.94
1501	Tuscarora Fertilizer Co., Atlanta, Ga.	do.	Siler City.				40.96

ANALYSES OF COMMERCIAL FERTILIZERS—SPRING SEASON, 1913.

Laboratory Number.	Name and Address of Manufacturer.	Name of Brand.	Where Sampled.	Percentage Composition or Parts per 100.								Relative Value per Ton at Factory.	
				Available Phosphoric Acid.	Water-soluble Nitrogen.	Organic Nitrogen.	Total Nitrogen.	Equivalent to Ammonia.	Potash.	Potash from Muriate.	Sulphate.		Chlorine.
MIXED FERTILIZERS.													
	Brands claiming			8.00			.82	1.00	3.00				\$13.64
2319	Caraleigh Phosphate and Fertilizer Works, Raleigh, N. C.	Comet Guano.	Winton.	8.55	.95	.90	1.85	2.25	2.83				18.29
2352	Reidsville Fertilizer Co., Reidsville, N. C.	Burton's Special Grain Fertilizer.	Reidsville.	7.29	.73	.46	1.19	1.45	2.66				14.22
3026	Union Guano Co., Winston, N. C.	Sunrise Ammoniated Guano.	Rural Hall.	8.67	.53	.72	1.25	1.52	2.41				15.46
2681	Va.-Car. Chemical Co., Richmond, Va.	The Harvester.	Millboro.	8.34	.45	.66	1.11	1.35	3.68				15.85
	Brands claiming			8.00			.82	1.00	4.00				14.64
1834	Bowker Fertilizer Co., Boston, Mass.	Bowker's Corn and Grain Grower.	Greensboro.	8.51	.75	.26	1.01	1.23	3.90				15.83
2302	Carolina Warehouse Co., Salisbury, N. C.	Farmers Union Guano.	Liberty.	9.70	.51	.62	1.13	1.37	2.22				15.70
2131	Imperial Co., Norfolk, Va.	Imperial Fish and Bone Grain Grower.	Statesville.	8.74	.59	.48	1.07	1.30	3.85				16.21
2834	do.	do.	Winston.	8.57	.83	.30	1.13	1.37	4.38				16.84
2984	Interstate Chemical Corporation, Charlotte, N. C.	Grain and Hay Producer.	Lexington.	8.58	.45	.44	.89	1.08	6.11				17.57
2319	Miller Fertilizer Co., Baltimore, Md.	Everett's Peanut Special.	Edenton.	7.44	.75	.56	1.31	1.59	3.91				16.11
1943	Ober, G., & Sons Co., Baltimore, Md.	Ober's Stag Guano.	Kinston.	9.35	.21	1.04	1.25	1.52	4.64				18.30
2239	Piedmont-Mount Airy Guano Co., Baltimore, Md.	Piedmont Farmers' Favorite.	Edenton.	8.69	.35	.52	.87	1.06	3.96				15.43
2936	Powhatan Chemical Co., Richmond, Va.	Magie Peanut Special.	Robersonville.	8.37	.75	.34	1.09	1.33	4.06				16.16
2978	Union Guano Co., Winston, N. C.	Union Superlative Guano.	Elkin.	9.80	.77	.58	1.35	1.64	3.10				17.59
2756	Winborne Guano Co., Norfolk, Va.	Winborne's Climax Guano.	Edenton.	8.02	.35	.56	.91	1.11	2.99				14.03

Brand claiming		8.00		1.00	1.22	3.00	14.40
1998	Baugh & Sons Co., Norfolk, Va.	9.29	.61	.40	1.01	1.23	2.89
Brands claiming		8.00			1.00	1.22	4.00
2469	Dixie Guano Co., Suffolk, Va.	8.08	.87	.36	1.23	1.50	4.22
1920	Pocomoke Guano Co., Norfolk, Va.	7.46	.93	.40	1.33	1.62	4.58
2034	Va.-Car. Chemical Co., Richmond, Va.	9.27	.85	.40	1.25	1.52	3.35
1917	do.	8.22	1.07	.40	1.47	1.79	4.12
3054	do.	8.10	.59	.60	1.19	1.45	5.17
2210	do.	8.28	.83	.42	1.25	1.52	4.33
Brand claiming		8.00			1.03	1.25	3.00
2161	Pocalontas Guano Co., Lynnhburg, Va.	7.79	.39	.64	1.03	1.25	2.84
Brand claiming		8.00			1.03	1.25	4.00
2598	Royster, F. S., Guano Co., Norfolk, Va.	8.03	.53	.54	1.07	1.30	3.82
Brand claiming		8.00			1.65	2.00	1.00
2618	Va.-Car. Chemical Co., Richmond, Va.	9.07	1.31	.38	1.69	2.05	1.12
Brands claiming		8.00			1.65	2.00	2.00
2908	Acme Mfg. Co., Wilmington, N. C.	8.05	.77	1.00	1.77	2.15	2.46
2093	do.	8.08	.91	1.04	1.95	2.37	2.76
5351	do.	9.31	.90	1.07	1.97	2.40	1.96
2477	do.	8.04	.89	.96	1.85	2.25	2.26
2398	Adair, A. D., & McCarty Co., Chattanooga, Tenn.	9.24	.63	.86	1.49	1.81	1.85
2734	American Agricultural Chemical Co., New York, N. Y.	8.14	1.13	.42	1.55	1.88	1.91
2608	do.	8.04	1.15	.46	1.61	1.96	1.81
2252	do.	8.12	1.11	.54	1.65	2.00	1.92
2025	do.	8.00	1.17	.60	1.77	2.15	2.18
2459	do.	8.10	1.21	.44	1.65	2.01	2.02

ANALYSES OF COMMERCIAL FERTILIZERS—SPRING SEASON, 1913.

Laboratory Number.	Name and Address of Manufacturer.	Name of Brand.	Where Sampled.	Percentage Composition or Parts per 100.								Relative Value per Ton at Factory.	
				Available Phosphoric Acid.	Water-soluble Nitrogen.	Organic Nitrogen.	Total Nitrogen.	Equivalent to Ammonia.	Total Potash.	Potash from Murate.	Potash from Sulphate.		Chlorine.
MIXED FERTILIZERS.													
Brands claiming-----													
2566	American Agricultural Chemical Co., New York, N. Y.	Zell's Special Tobacco Compound	Burlington	8.00	1.07	.84	1.91	2.32	1.97	1.97	6.10	\$16.13	
3049	American Fertilizer Co., Norfolk, Va.	Bone and Peruvian Guano	Enfield	8.88	1.05	.60	1.65	2.01	2.16			17.08	
2895	do-----	American No. 2 Fertilizer	Dunn	9.18	1.19	.62	1.81	2.22	1.88			17.74	
2276	do-----	Bone and Peruvian Guano	Wadesboro	8.46	1.31	.50	1.81	2.20	1.73			16.95	
2242	do-----	Hanna's (A. L.) Special Formula	Ruffin	8.30	1.65	.46	2.11	2.57	1.99			18.32	
1786	Armour Fertilizer Works, Wilmington, N. C.	Armour's Slaughter-house Fertilizer	Wilmington	8.80	1.27	.64	1.91	2.32	1.84			17.78	
2018	Arps, George L., & Co., Norfolk, Va.	Arps' Premium Guano for Cotton	Edenton	7.39	.95	.74	1.69	2.05	2.04	2.04	6.08	15.79	
2264	Ashepoo Fertilizer Co., Charleston, S. C.	Standard Eutaw XX Guano	Monroe	9.28	1.33	.62	1.95	2.37	1.88			18.42	
2208	Atlantic Chemical Co., Norfolk, Va.	Atlantic Soluble Guano	Edenton	8.64	.97	.64	1.61	1.96	2.19			16.73	
2307	Atlantic Fertilizer Co., Atlanta, Ga.	Atlantic Corn and Cotton Fertilizer	Four Oaks	8.19	.71	.92	1.63	1.98	1.92			16.14	
2309	Banner Fertilizer Co., Benson, N. C.	Banner Top Notch Guano	Benson	8.61	.37	1.34	1.71	2.08	2.30			17.23	
1704	Baugh & Sons Co., Norfolk, Va.	Baugh's Animal Bone and Potash Compound	Tabor	8.00	.97	.88	1.85	2.25	2.21			17.18	
1992	do-----	do-----	Pinetops	8.19	1.01	.86	1.87	2.27	2.16			17.38	
1733	do-----	Baugh's Fish Mixture	Elizabeth City	7.95	.89	.90	1.79	2.18	2.25			16.92	
2265	Berkley Chemical Co., Norfolk, Va.	Brandon Superphosphate	Monroe	8.29	1.05	.48	1.53	1.86	1.92			15.81	
2188	Bertie Cotton Oil Co., Aulander, N. C.	Bertie's Special Compound	Aulander	7.87	.39	1.28	1.67	2.03	1.90			16.00	

2181	Beta Fertilizer Co., Beta, N. C.	Beta Corn Grower	Beta	8.52	1.21	.80	2.01	2.44	1.97	-----	18.08
2624	Bryant Fertilizer Co., Wilmington, N. C.	Bryant's Cotton Grower	Marshall	8.39	.89	.84	1.73	2.10	2.07	-----	16.89
2289	do	Bryant's Cotton-seed Meal Guano	Angier	7.81	.27	1.36	1.63	1.98	2.29	-----	16.16
2666	Burton, C. J., Guano Co., Baltimore, Md.	Burton's Butcher Bone	Laurinburg	7.66	1.25	.52	1.77	2.15	2.14	-----	16.47
2243	Caraleigh Phosphate and Fertilizer Works, Raleigh, N. C.	Crown Brand Ammoniated Guano	Ruffin	8.45	1.25	.76	2.01	2.44	2.32	-----	18.37
2197	do	Eli Ammoniated Fertilizer	Winton	7.25	1.29	.98	2.27	2.76	2.94	-----	19.00
5302	Carolina Warehouse Co., Salisbury, N. C.	Farmers' Union 8-2-2 Guano	Statesville	7.59	.49	.98	1.47	1.79	3.14	-----	16.14
5317	do	do	Vanceboro	8.92	1.61	.06	1.67	2.03	1.44	-----	16.68
2294	do	do	Siler City	8.80	1.63	.48	2.11	2.57	2.02	-----	18.80
2947	do	Farmers' Union 8-2-2 Tobacco Guano	Reidsville	8.00	1.51	.42	1.93	2.35	1.87	1.87	2.75
2293	Clayton Oil Mills, Clayton, N. C.	Summer Queen	Angier	8.39	.75	1.22	1.97	2.40	2.52	-----	18.34
1839	Columbia Guano Co., Norfolk, Va.	Columbia Soluble Guano for Tobacco	Greensboro	8.44	1.15	.46	1.61	1.96	2.18	2.18	4.90
2085	Contentnea Guano Co., Wilson, N. C.	Blood and Bone Cotton Guano	Whitakers	9.04	1.43	.66	2.09	2.54	1.98	-----	18.89
2124	Cooper Guano Co., Wilmington, N. C.	Cooper's Bald Head Island	Autryville	8.26	1.15	.46	1.61	1.96	2.08	-----	16.28
2056	do	Cooper's Reward	Jamesville	8.55	.35	1.60	1.95	2.37	2.19	-----	20.07
2483	Coweta Fertilizer Co., Newnan, Ga.	Coweta Success Guano	Murfreesboro	7.62	1.27	.52	1.79	2.18	1.94	-----	16.32
1379	Craven Chemical Co., New Bern, N. C.	Elite Cotton Guano	Snow Hill	8.05	.83	1.32	2.15	2.61	2.21	-----	18.48
2266	Crow Fertilizer Co., Monroe, N. C.	Crow's Union County Special	Monroe	8.47	.21	1.18	1.39	1.69	4.46	-----	17.92
2108	Dixie Guano Co., Suffolk, Va.	Dixie Standard Guano	Edenton	8.47	1.37	.62	1.99	2.42	2.35	-----	18.33
1627	Eastern Cotton Oil Co., Hertford, N. C.	Perquimans Favorite	Hobbsville	7.50	.60	1.59	2.19	2.66	3.18	-----	18.13
1860	Farmers Cotton Oil Co., Wilson, N. C.	Farmers' Special Guano	Dunn	7.67	.83	1.46	1.99	2.42	2.58	-----	17.84
2955	do	Crop King Guano	Grimesland	9.18	1.23	.96	2.19	2.66	2.51	-----	19.97
2202	Farmers Guano Co., Norfolk, Va.	State Standard Guano	Mount Gilead	8.68	.85	.80	1.65	2.00	1.93	-----	16.67
1663	Fremont Oil Mill Co., Fremont, N. C.	Up-to-date	Fremont	8.49	.88	.61	1.49	1.81	2.32	-----	16.22
2683	Georgia Chemical Works, Augusta, Ga.	Georgia Formula	Siler City	7.74	1.53	.46	1.99	2.42	2.01	-----	17.33
2696	do	Georgia Special Tobacco Guano	Greensboro	7.94	1.63	.38	2.01	2.44	1.98	1.98	2.85
2518	Grandy, N. G., & Co., Elizabeth City, N. C.	Grandy's Farmers' Guano	Elizabeth City	7.39	.91	.80	1.71	2.08	2.36	-----	16.19

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				Available Phosphoric Acid.	Water-soluble Nitrogen.	Organic Nitrogen.	Total Nitrogen.	Equivalent to Ammonia.	Total Potash.	Potash from Muriate.	Potash from Sulphate.		Chlorine.
MIXED FERTILIZERS.													
Brands claiming													
2248	Hampton Guano Co., Norfolk, Va.	Extra Tobacco Guano.	Reidsville.	8.00			1.65	2.00	2.00				\$16.13
1918	do.	Shirley Superphosphate.	Maiden.	8.80	1.13	.54	1.67	2.03	1.94	1.94			16.87
2027	Harrell, S. B., & Co., Norfolk, Va.	Harrell's Champion Cotton and Peanut Grower.	Edenton.	8.50	1.21	.66	1.89	2.30	2.25				17.84
1797	Holmes & Dawson, Norfolk, Va.	Triumph Soluble Guano.	Williamston.	8.35	1.57	.14	1.71	2.08	1.94				16.64
2019	Hubbard, M. P., Co., Baltimore, Md.	Hubbard's Celebrated Phosphate for General Use.	Edenton.	7.97	2.35	.64	2.99	3.64	2.64				22.37
1849	Hubbard Fertilizer Co., Baltimore, Md.	Hubbard's Exchange Guano.	New Bern.	8.07	.55	1.10	1.65	2.01	2.44				16.63
5849	Imperial Co., Norfolk, Va.	Champion Guano.	Lucama.	7.84	.79	.82	1.61	1.96	2.07				15.89
1579	do.	do.	Wadesboro.	7.99	1.68	.25	1.93	2.35	2.16				17.46
2156	do.	Imperial Cotton Grower.	Statesville.	8.08	.99	.68	1.67	2.03	2.16				16.45
2344	Interstate Chemical Corporation, Charlotte, N. C.	Ammoniated Fertilizer.	Salisbury.	8.07	1.13	.54	1.67	2.03	1.94				16.22
2663	Lister's Agricultural Chemical Co., Newark, N. J.	Lister's Standard Pure Bone.	Franklinton.	7.62	.45	1.28	1.73	2.10	2.80				16.92
2000	do.	Lister's Success Fertilizer.	Rockwell.	9.14	1.27	.44	1.71	2.08	2.04				17.45
1762	Martin, D. B., Co., Norfolk, Va.	Martin's Carolina Cotton.	Four Oaks.	8.60	1.29	.62	1.91	2.32	2.01				17.77
5346	do.	do.	Duke.	8.92	1.07	.90	1.97	2.40	2.19				18.49
1787	do.	do.	Martin's Cotton and Tobacco Special.	7.34			1.65	2.00	3.02				16.56
2331	Meadows, E. H. & J. A., Co., New Bern, N. C.	Meadows' Cotton Guano.	Comfort.	7.52	.93	.82	1.75	2.13	2.23	2.23			1.90
				9.85	.69	1.38	2.07	2.52	3.02				20.58

1902	Miller Fertilizer Co., Baltimore, Md.	Ammoniated Dissolved Bone	Edenton	8.31	1.13	.52	1.65	2.00	2.09	-----	16.60
2741	do.	Farmers' Profit	Wake Forest	8.01	.99	.64	1.63	1.98	2.15	-----	16.20
2332	Navassa Guano Co., Wilmington, N. C.	Navassa Cotton Fertilizer	Richlands	8.13	.95	.68	1.63	1.98	2.19	-----	16.35
2139	do.	do.	Troy	8.59	1.19	.50	1.69	2.05	1.98	-----	16.81
1763	do.	Navassa Cotton-seed Meal Guano	Princeton	8.53	.17	1.52	1.69	2.05	1.94	-----	16.71
1930	do.	Navassa Grain Fertilizer	Graham	8.81	1.19	.40	1.59	1.93	1.68	-----	16.29
2569	New Bern Cotton Oil and Fertilizer Mills, New Bern, N. C.	Craven Cotton Guano	Redsboro	8.40	.31	1.34	1.65	2.00	2.54	-----	17.08
2004	do.	Greene County Standard Fertilizer	Grifton	9.53	.47	1.66	2.13	2.59	3.79	-----	21.31
2268	N. C. Cotton Oil Co., Charlotte, N. C.	Majestic Fertilizer	Waxhaw	7.91	.59	1.22	1.81	2.20	1.96	-----	16.68
5334	do.	do.	Mooresboro	8.00	-----	-----	1.69	2.05	1.84	-----	16.14
2494	N. C. Cotton Oil Co., Henderson, N. C.	Henderson Cotton Grower	Broadway	8.28	.69	1.06	1.75	2.13	2.21	-----	17.01
1828	do.	Vance Cotton Grower	Coats	8.07	.57	1.32	1.89	2.30	2.08	-----	17.28
2009	N. C. Cotton Oil Co., Wilmington, N. C.	Wilmington Cotton Grower	Roseboro	8.77	.75	1.08	1.83	2.22	2.24	-----	17.82
1865	do.	Wilmington Special	Dunn	8.40	.61	1.02	1.63	1.98	2.41	-----	16.82
2245	Norfolk Fertilizer Co., Norfolk, Va.	Oriana Crop Grower	Ruffin	8.02	1.27	.48	1.75	2.13	2.05	-----	16.62
2939	do.	Oriana Cotton Guano	Derita	7.90	1.33	.54	1.87	2.27	1.94	-----	16.90
1944	Ober, G. & Sons Co., Baltimore, Md.	Ober's Special Cotton Compound	Kinston	8.07	1.03	.72	1.75	2.13	2.28	-----	16.89
2946	do.	Ober's Standard Tobacco Fertilizer	Stoneville	8.44	.91	.76	1.67	2.03	2.04	-----	16.65
2397	Old Buck Guano Co., Richmond, Va.	Old Buck Saxon Corn and Tobacco Guano	Boonford	7.28	1.07	.64	1.71	2.08	2.32	-----	16.05
1994	Pamlico Chemical Co., Washington, N. C.	Bone and Fish Guano	Pinetops	8.37	.65	1.16	1.81	2.20	2.57	-----	17.60
2861	do.	do.	Grimesland	7.94	.75	1.10	1.85	2.25	2.52	-----	17.44
2920	Pan-American Fertilizer Co., New York, N. Y.	Pan-American Universal Phosphate	Jones Landing	7.60	.85	.24	1.09	1.33	3.07	-----	14.49
2677	Patapsco Guano Co., Baltimore, Md.	Grange Mixture	Eves Siding	8.26	.99	.72	1.71	2.08	2.03	-----	16.65
2160	do.	Planters' Favorite	Mebane	8.46	1.13	.52	1.65	2.00	2.12	-----	16.66
1765	do.	Sea Gull Ammoniated Guano	Benson	8.00	1.17	.50	1.67	2.03	2.01	-----	16.22
1609	do.	do.	Rocky Mount	7.77	1.27	.56	1.83	2.22	2.34	-----	17.02

ANALYSES OF COMMERCIAL FERTILIZERS—SPRING SEASON, 1913.

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				Available Phosphoric Acid.	Water-soluble Nitrogen.	Organic Nitrogen.	Total Nitrogen.	Equivalent to Ammonia.	Total Potash.	Potash from Muriate.	Potash from Sulphate.		Chlorine.
MIXED FERTILIZERS.													
Brands claiming													
3003	Pearsall & Co., Wilmington, N. C.	Pearsall's Two-step Guano	Wilmington	8.00			1.65	2.00	2.00				\$16.13
3016	Peruvian Guano Corporation, Charleston, S. C.	Standard Peruvian Mixture	Shelby	8.20	.59	1.56	2.15	2.61	2.92				19.33
3030	Piedmont-Mount Airy Guano Co., Baltimore, Md.	Piedmont Bone and Peruvian Mixture.	Burlington	8.81	1.36	.15	1.51	1.84	2.00				16.27
2270	do	Piedmont Cultivator	Monroe	8.45	.47	1.12	1.59	1.93	1.92				16.20
2555	do	Piedmont Fish Guano	Monroe	7.99	.51	1.16	1.67	2.03	2.10				16.30
2030	do	do	Edenton	8.47	.39	1.12	1.51	1.84	2.21				16.17
2193	do	Piedmont Special for Cotton, Corn, and Peanuts.	Ahoskie	8.49	.47	1.14	1.61	1.96	2.45				16.85
1653	Pine Level Oil Mill Co., Pine Level, N. C.	Cotton Grower for All Crops	Benson	8.58	.61	1.06	1.67	2.03	2.36				17.10
2096	Planters Fertilizer and Phosphate Co., Charleston, S. C.	Planters' Standard Fertilizer	Clinton	7.75	.34	1.55	1.89	2.30	3.02				17.93
2037	Pocahontas Guano Co., Lynchburg, Va.	Carrington's Banner Brand Guano	Madison	8.81	.91	.72	1.63	1.98	2.16				16.93
2199	Pocomoke Guano Co., Norfolk, Va.	Pamlico Superphosphate	Lewiston	8.03	.99	.74	1.73	2.10	2.30				16.79
2786	do	do	Roseboro	8.47	.57	1.22	1.79	2.18	2.46				17.60
2291	Powhatan Chemical Co., Richmond, Va.	Magic Cotton Grower	Angier	7.97	.67	.90	1.57	1.91	2.12				15.89
2352	do	Magic Special Fertilizer	Ronda	7.99	1.27	.52	1.79	2.18	2.46				17.17
1658	Rasin-Monumental Co., Baltimore, Md.	Empire Guano	Selma	8.38	1.33	.46	1.79	2.18	2.26				17.32
2248	Reidsville Fertilizer Co., Reidsville, N. C.	Reidsville Champion	Reidsville	8.24	.24	1.85	2.09	2.50	2.30				18.49
				8.01	.53	1.16	1.69	2.05	1.85				16.16

2321	Richmond Guano Co., Richmond, Va.	Edgcombe Cotton Grower.	Scotland Neck.	8.61	.87	1.85	2.25	2.30			17.82
1768	do.	Premium Brand Fertilizer.	Pine Level.	8.59	1.41	.44	1.85	2.25	2.34		17.84
1631	do.	do.	Hobbsville.	8.03	1.20	.69	1.89	2.30	2.16		17.32
1840	Robertson Fertilizer Co., Norfolk, Va.	Double Dollar Guano.	Gibsonville.	8.15	.79	.90	1.69	2.05	2.02		16.45
1564	Royster, F. S., Guano Co., Norfolk, Va.	Farmers' Bone Fertilizer.	Kinston.	8.33	1.17	.54	1.71	2.08	2.20		16.88
2316	do.	Royster's Complete Guano.	Salisbury.	8.50	1.60	.06	1.67	2.03	2.23		16.89
2755	Shannonhouse, H. T., Hertford, N. C.	Square Deal Guano.	Hertford.	8.09	.85	.82	1.67	2.03	2.42		16.71
2578	Southern Chemical Co., Roanoke, Va.	Our Favorite.	Stoneville.	8.75	.93	.62	1.55	1.88	2.02		16.40
2271	Southern Cotton Oil Co., Charlotte, N. C.	Hart's Cotton and Corn Fertilizer.	Monroe.	7.40	.73	1.24	1.97	2.40	2.42		17.35
2942	do.	Marsh Bros' Cotton and Corn Fertilizer.	Marshall.	7.67	.47	.40	.87	1.06	2.85		13.41
2623	do.	Union Hardware Co.'s Cotton and Corn Fertilizer.	Marshall.	7.40	.33	1.32	1.65	2.00	2.18		15.77
3050	Southern Cotton Oil Co., Rocky Mount, N. C.	Southern Cotton Oil Co.'s Peanut Grower.	Enfield.	7.80	.65	.66	1.31	1.59	3.96		16.48
2906	Southern Cotton Oil Co., Shelby, N. C.	Double Two.	Iron.	8.22	.49	.66	1.15	1.40	1.59		13.82
2279	Southern Cotton Oil Co., Wadesboro, N. C.	Gloria Standard Fertilizer.	Wadesboro.	7.66	.91	1.18	2.09	2.54	2.01		17.68
2673	Spartanburg Fertilizer Co., Spartanburg, S. C.	Tiger Brand C. C. and O. Special.	Mooresboro.	8.34	.87	.66	1.53	1.86	2.12		16.05
2851	Swift Fertilizer Works, Atlanta, Ga.	Swift's Red Steer Standard Grade Guano.	Hendersonville.	8.04	.99	.76	1.75	2.13	1.78		16.37
1570	do.	do.	Burgaw.	7.90	1.11	1.12	2.33	2.83	2.19		19.09
2986	Tidewater Guano Co., Norfolk, Va.	Double Action Soluble Guano.	Bixby.	8.82	1.01	.66	1.67	2.03	2.26		17.21
2720	Tuscarora Fertilizer Co., Wilmington, N. C.	Tuscarora Standard.	Winston.	7.96	.83	.66	1.59	1.93	1.83		15.67
3025	do.	Tuscarora Standard Tobacco Grower.	Mount Airy.	8.02	.19	1.62	1.81	2.20	1.79	1.79	16.61
2443	Union Guano Co., Winston, N. C.	Fish Brand Ammoniated Guano for Tobacco.	High Point.	8.05	1.77	.44	2.21	2.69	2.21	2.21	18.74
1581	do.	Old Honesty Guano.	Wadesboro.	7.71	1.19	.56	1.75	2.13	1.99		16.28
2870	Union Abattoir Co., Baltimore, Md.	Red Star Standard Guano.	Benson.	9.10	.81	.70	1.51	1.93	1.97		16.50
1830	United States Fertilizer Co., Baltimore, Md.	Farm Bell Standard Guano.	Coats.	8.52	.75	1.02	1.77	2.15	2.53		17.63
5355	do.	do.	Pinnacle.	8.40			1.85	2.25	2.66		17.99
2323	Upshur, R. L., Guano Co., Norfolk, Va.	Grain, Grass, and Cotton Guano.	Gates.	7.99	.91	.62	1.53	1.86	2.48		16.10

ANALYSES OF COMMERCIAL FERTILIZERS—SPRING SEASON, 1913.

Laboratory Number.	Name and Address of Manufacturer.	Name of Brand.	Where Sampled.	Percentage Composition or Parts per 100.							Relative Value per Ton at Factory.	
				Available Phosphoric Acid.	Water-soluble Nitrogen.	Organic Nitrogen.	Total Nitrogen.	Equivalent to Ammonia.	Total Potash.	Potash from Muriate.		Potash from Sulphate.	Chlorine.
MIXED FERTILIZERS.												
Brands claiming												
2419	Vance Guano Co., Henderson, N. C.	Hot Stuff	Littleton	8.00			1.65	2.00	2.00			\$16.13
2619	do.	Sterling Cotton Grower	Manson	8.32	.95	.66	1.61	1.96	2.12			16.37
2773	Venable Fertilizer Co., Richmond, Va.	Planters' Bone Fertilizer	Kings Mountain	8.07	1.01	.78	1.79	2.18	2.16			16.94
1812	Va.-Car. Chemical Co., Richmond, Va.	Allison & Addison's Anchor Brand Fertilizer	Monroe	7.00	1.07	.52	1.59	1.93	4.12			17.10
2434	do.	Allison & Addison's Old Hickory Guano.	Chadbourne	8.01	.63	1.03	1.71	2.03	2.13			16.52
2112	do.	Beef, Blood, and Bone Fertilizer	Elizabeth City	8.49	1.23	.58	1.81	2.20	2.00			17.24
1769	do.	Charlotte Oil and Fertilizer Co.'s King Cotton Grower	Princeton	7.66	1.29	.54	1.83	2.22	2.02			16.60
1804	do.	Davie & Whittle's Owl Brand Guano.	Williamston	8.77	.27	1.56	1.83	2.22	2.03			17.61
1577	do.	Durham Fertilizer Co.'s Genuine Bone and Peruvian Guano.	Lumberton	8.32	1.37	.46	1.83	2.22	1.89			17.06
2993	do.	Durham Fertilizer Co.'s Genuine Slaughter-house Bone Guano.	Wadesboro	7.77	1.39	.72	2.11	2.57	2.77			18.62
2253	do.	Electric Brand Guano	Hendersonville	8.29	1.15	.60	1.75	2.13	1.85			16.66
2220	do.	Norf. and Car. Chem. Co.'s Genuine Slaughter-house Bone Guano.	Selma	7.72	.25	1.24	1.49	1.81	2.35			15.56
1921	do.	Old Dominion Guano Co.'s Soluble Guano	Maiden	9.94	.79	.50	1.29	1.57	1.45			15.81
1696	do.	do.	Edenton	8.50	.67	1.00	1.67	2.03	2.40			17.06
2013	do.	Powers, Gibbs & Co.'s Eagle Island Ammoniated Guano.	Grover	8.80	1.24	.45	1.69	2.05	1.90			16.92
2130	do.	Powers, Gibbs & Co.'s Soluble Ammoniated Guano.	Roseboro	9.92	.77	.52	1.29	1.57	1.38			15.74
				8.91	.51	1.46	1.97	2.40	2.11			18.40

2083	do	Southern Chemical Co.'s Electric Standard Guano.	Kenly	9.04	.65	.80	1.45	1.76	1.99	16.22
2467	do	Tinsley, J. G., & Co.'s Stonewall Guano.	Windsor	8.15	1.33	.54	1.87	2.27	3.46	18.65
2211	do	do	Edenton	8.25	1.27	.56	1.83	2.22	2.07	17.18
2637	do	Tinsley, J. G., & Co.'s Stonewall Tobacco Guano.	Winston	8.32	1.07	.54	1.61	1.96	1.73	15.98
1875	do	Travers, S. W., & Co.'s National Fertilizer.	Durham	8.63	1.14	.54	1.68	2.04	1.81	16.68
2105	do	V.-C. C. Co.'s Ajax Guano.	Hemp	8.55	.31	1.38	1.69	2.05	2.00	16.79
1859	do	Diamond Dust.	Dunn	8.39	.27	1.36	1.62	1.97	2.20	16.60
2128	do	V.-C. C. Co.'s Farmers' Favorite Fertilizer.	Roseboro	8.15	.39	1.50	1.89	2.30	2.08	17.35
2953	do	do	Madison	7.84	.53	1.28	1.81	2.20	2.36	17.02
1669	do	V.-C. C. Co.'s Plant Food	Fremont	8.17	.30	1.53	1.83	2.22	2.15	17.19
5392	do	do	Raleigh	7.64	-----	-----	1.91	2.32	2.42	17.32
1708	do	Winston's Special for Cotton.	Fair Bluff	8.92	.23	1.60	1.83	2.22	2.17	16.88
1657	Wilson Chemical Co., Wilson, N. C.	Cotton State Standard.	Benson	8.40	.88	1.27	2.15	2.61	2.56	19.15
5852	do	do	Lucama	7.59	1.25	.84	2.09	2.54	2.18	17.79
2033	Winborne Guano Co., Norfolk, Va.	Excelsior Guano.	Edenton	8.11	1.27	.40	1.67	2.03	2.39	16.70
2209	Young, J. R., Fertilizer Co., Norfolk, Va.	Young's New Process Guano for Cotton.	Elizabeth City	8.02	1.11	.76	1.87	2.27	2.45	17.52
2714	do	Young's Special 2-8-2 Guano.	Oxford	8.50	.65	.76	1.41	1.71	2.02	15.59
Brands claiming				8.00	-----	-----	1.65	2.00	3.00	17.13
2641	Carolina Warehouse Co., Salisbury, N. C.	Farmers' Union Guano.	Salisbury	8.55	1.15	.52	1.67	2.03	2.47	17.18
5305	do	do	China Grove	8.33	1.23	.76	1.99	2.42	3.75	19.60
2175	Navassa Guano Co., Wilmington, N. C.	Clark's Special Cotton-seed Meal Guano.	Clarkton	9.62	.81	1.12	1.93	2.35	3.21	20.17
2176	N. C. Cotton Oil Co., Wilmington, N. C.	Clark's Special Guano.	Abbotsburg	8.99	.69	1.06	1.75	2.13	3.25	18.69
2909	do	Maulsby's Cotton Grower.	Whiteville	8.20	.71	1.04	1.75	2.13	3.46	18.19
2435	do	Wilmington Banner.	Whiteville	8.17	.63	1.08	1.71	2.08	3.39	17.92
2405	Famlico Chemical Co., Washington, N. C.	Rustproof Cotton Guano.	Bayboro	8.06	.33	1.18	1.51	1.84	3.02	16.62
2177	Robeson Mfg. Co., Lumberton, N. C.	Robeson Special	Clarkton	8.10	.07	1.64	1.71	2.08	3.83	18.30

ANALYSES OF COMMERCIAL FERTILIZERS—SPRING SEASON, 1913.

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				Available Phosphoric Acid.	Water-soluble Nitrogen.	Organic Nitrogen.	Total Nitrogen.	Equivalent to Ammonia.	Total Potash.	Potash from Muriate.	Potash from Sulphate.	Chlorine.		
MIXED FERTILIZERS.														
Brands claiming														
2053	Southern Exchange Co., Maxton, N. C.	Clark's Special Compound	Clarkton	8.00			1.65	2.00	3.00					\$17.13
2127	do	Currie's Crop Lifter	Autryville	7.87	1.09	.62	1.71	2.08	3.22					17.48
1791	Swift Fertilizer Works, Wilmington, N. C.	Clark's Special Cotton Guano	Clarkton	8.22	.31	1.34	1.65	2.08	3.18					17.51
2531	do	Swift's Pioneer Tobacco Guano	Siloam	6.32	.63	1.00	1.63	1.98	4.62		4.62			17.15
Brands claiming														
2837	Armour Fertilizer Works, Greensboro, N. C.	Armour's No. 821 Fertilizer	Winston	8.16	.27	1.58	1.85	2.25	3.19					18.30
2515	Miller Fertilizer Co., Baltimore, Md.	Potato and Vegetable Grower	Elizabeth City	7.92	1.13	.46	1.59	1.93	4.56					18.37
Brands claiming														
2957	Armour Fertilizer Works, Greensboro, N. C.	Stokes County Tobacco Special	Pinnacle	8.00			1.65	2.00	5.00					19.13
2310	Banner Fertilizer Co., Beuson, N. C.	Banner Corn Fertilizer	Beuson	7.98	.11	1.52	1.63	1.98	4.63		4.63			18.66
2631	Baugh & Sons Co., Norfolk, Va.	Baugh's Complete Animal Base Fertilizer	Winston	8.43	.25	1.44	1.69	2.05	5.93					20.61
2898	Marietta Fertilizer Co., Atlanta, Ga.	Marietta Fruit and Root Crop Fertilizer Special	Coats	9.02	.75	.74	1.49	1.81	4.90					19.28
1861	Martin, D. B., Co., Norfolk, Va.	Martin's Cotton and Tobacco Guano	Dunn	8.62	1.29	.48	1.77	2.15	4.31					19.50
2976	Swift Fertilizer Works, Wilmington, N. C.	Swift's Bright Leaf Tobacco Grower	Siloam	8.31	.75	.88	1.63	1.98	4.65		4.65		4.40	18.97
2640	Va.-Car. Chemical Co., Richmond, Va.	Pace's Special 5 Per Cent Potato Guano	Winston	7.61	1.27	.50	1.77	2.15	4.65		4.65			18.93
1659	do	V.-C. Co.'s Monarch Brand Guano Benson	Benson	8.97	1.21	.30	1.51	1.84	5.00					19.41
				8.65	1.29	.44	1.73	2.10	4.45					19.50

Brands claiming		8.00	.74	1.65	2.00	6.00	20.13
2580	Asheville Packing Co., Asheville, N. C.	7.68	.51	1.25	1.52	6.54	18.70
2777	Richmond Guano Co., Richmond, Va.	8.39	.85	1.71	2.08	6.25	20.98
2638	Va.-Car. Chemical Co., Richmond, Va.	7.27	1.19	.40	1.59	1.93	18.46
2185	do.	8.72	.97	.48	1.45	1.76	21.29
Brands claiming		8.00		1.65	2.00	10.00	24.13
2742	Miller Fertilizer Co., Baltimore, Md.	8.20	.81	1.65	2.00	8.74	23.05
1621	Union Guano Co., Winston, N. C.	8.88	1.18	.43	1.61	1.96	26.08
2205	do.	7.25	1.81	.24	2.05	2.49	24.63
Brands claiming		8.00		2.06	2.50	2.00	17.85
2970	Acme Mfg. Co., Wilmington, N. C.	8.44	.99	1.28	2.27	2.76	19.54
1986	do.	8.14	1.11	.98	2.09	2.54	18.07
5813	Josey, N. B., Guano Co., Tarboro, N. C.	8.97	.57	1.08	1.65	2.00	17.36
1999	Lister's Agricultural Chemical Works, Newark, N. J.	8.17	1.29	.82	2.11	2.57	19.45
2416	do.	8.21	.93	1.22	2.15	2.61	18.91
1987	Navassa Guano Co., Wilmington, N. C.	7.76	1.31	.66	1.97	2.40	17.89
2962	do.	8.19	.77	1.40	2.17	2.64	19.35
2951	Royster, F. S., Guano Co., Norfolk, Va.	8.35	1.43	.70	2.13	2.59	18.46
3027	Va.-Car. Chemical Co., Richmond, Va.	8.30	.77	1.36	2.13	2.59	19.62
Brands claiming		8.00		2.06	2.50	2.50	18.35
2632	American Agricultural Chemical Co., New York, N. Y.	8.49	1.03	.60	1.63	1.98	16.61
1855	Meadows, E. H. & J. A., Co., New Bern, N. C.	9.23	.37	1.54	1.91	2.32	19.38
Brands claiming		8.00		2.06	2.50	3.00	18.85
1701	Acme Mfg. Co., Wilmington, N. C.	8.00	.97	1.34	2.31	2.81	19.97
2959	American Fertilizer Co., Norfolk, Va.	9.05	1.75	.36	2.11	2.57	20.24
2762	Armour Fertilizer Works, Greensboro, N. C.	7.87	.29	1.60	1.89	2.30	18.00
	Armour's Gold Medal for Tobacco Fertilizer.						2.98

ANALYSES OF COMMERCIAL FERTILIZERS—SPRING SEASON, 1913.

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				Available Phosphoric Acid.	Water-soluble Nitrogen.	Organic Nitrogen.	Total Nitrogen.	Equivalent to Ammonia.	Total Potash.	Potash from Muriate.	Potash from Sulphate.	Chlorine.			
MIXED FERTILIZERS.															
Brands claiming															
2942	Atlantic Chemical Co., Norfolk, Va.	Atlantic Tobacco Grower	Elkin	8.00	---	---	2.06	2.50	3.00	---	---	---	---	---	\$18.85
2885	Bryant Fertilizer Co., Wilmington, N. C.	Bryant's Otter Special Tobacco Fertilizer.	Fairmont	8.27	1.31	.80	2.11	2.57	2.95	2.95	---	---	---	8.45	19.25
2290	do	Bryant's Tobacco Fertilizer	Angier	9.40	1.71	.32	2.03	2.47	2.69	2.69	---	---	---	3.50	19.68
2605	Burton, C. J., Guano Co., Baltimore, Md.	Burton High Grade	Louisburg	9.15	1.65	.32	1.97	2.40	2.89	2.89	---	---	---	3.70	19.40
2257	Caraleigh Phosphate and Fertilizer Works, Raleigh, N. C.	Caraleigh Special Tobacco Guano	Rougemont	8.39	1.15	.90	2.05	2.49	3.17	---	---	---	---	---	19.33
2718	Carolina Warehouse Co., Salisbury, N. C.	Farmers' Union	Winston	9.10	.61	1.02	2.23	2.71	3.07	3.07	---	---	---	7.75	20.63
2943	Coe-Mortimer Co., Charleston, S. C.	Coe-Mortimer Co.'s Bright Tobacco Grover.	Reidsville	9.07	3.03	.40	3.43	4.17	3.13	---	---	---	---	---	25.70
2873	do	Coe-Mortimer Co.'s Cotton and Corn Fertilizer.	Star	7.77	1.57	.68	2.25	2.74	3.26	2.80	.46	2.10	---	---	19.70
5846	Contentnea Guano Co., Wilson, N. C.	Bragg Cotton Grover	Lucama	8.02	1.55	.60	2.15	2.61	2.81	---	---	---	---	---	19.06
1594	Craven Chemical Co., New Bern, N. C.	Marvel Great Crop Grover	Mount Olive	8.90	.93	1.08	2.01	2.44	3.28	---	---	---	---	---	19.73
1880	Farmers Cotton Oil Co., Wilson, N. C.	Planters' Friend Guano	Red Springs	7.23	.97	1.52	2.49	3.03	3.78	---	---	---	---	---	20.74
2155	Farmers Guano Co., Raleigh, N. C.	Toco Tobacco Guano	Wendell	7.81	.99	1.20	2.19	2.66	3.22	---	---	---	---	---	19.45
1664	Fremont Oil Mill Co., Fremont, N. C.	Square Deal	Fremont	8.79	.51	1.66	2.17	2.64	3.24	3.24	---	---	---	8.10	20.26
2671	Imperial Co., Norfolk, Va.	Imperial Bright Tobacco Guano	LaGrange	7.27	.96	.93	1.89	2.30	3.53	---	---	---	---	---	18.01
3022	Marietta Fertilizer Co., Atlanta, Ga.	Marietta Farmers' Choice	Mount Airy	8.52	1.53	.56	2.09	2.54	2.93	2.93	---	---	---	8.10	19.38
1857	Meadows, E. H. & J. A., Co., New Bern, N. C.	Meadows' Roanoke Guano	New Bern	7.61	.35	1.56	1.91	2.32	2.80	---	---	---	---	---	17.67
				8.63	.93	1.38	2.31	2.81	3.75	---	---	---	---	---	21.22

2565	Miller Fertilizer Co., Baltimore, Md.	Miller's High Grade.	Burlington.	7.59	1.37	.84	2.21	2.69	2.93	---	---	19.04
1989	Navassa Guano Co., Wilmington, N. C.	Maulsby's Meal Mixture.	Whiteville.	7.65	.81	1.96	2.77	3.37	4.30	---	---	22.82
2963	do.	Sullivan Tobacco Special.	Pinnacle.	9.47	1.17	.72	1.89	2.30	2.62	2.62	---	3.95
2068	N. C. Cotton Oil Co., Wilmington, N. C.	Wilmington Tobacco Grower.	Roseboro.	9.33	.71	1.30	2.01	2.44	3.25	---	---	20.09
2570	New Bern Cotton Oil and Fertilizer Mills, New Bern, N. C.	Onslow Farmers' Reliance Guano.	Reelsboro.	8.53	.81	1.64	2.45	2.98	4.32	---	---	22.29
2404	Famlico Chemical Co., Washington, N. C.	Quick Grower.	Bayboro.	8.00	.89	1.08	1.97	2.40	3.65	---	---	19.12
2698	Patapsco Guano Co., Baltimore, Md.	Patapsco Special Tobacco Mixture.	Cotfax.	8.20	2.39	.50	2.89	3.51	2.83	2.83	---	7.05
2380	do.	Unicorn Guano.	North Wilkesboro	8.29	1.53	.68	2.21	2.69	3.50	---	---	20.24
2564	Piedmont-Mount Airy Guano Co., Baltimore, Md.	Piedmont Guano for Tobacco.	Leaksville.	8.92	.69	1.30	1.99	2.42	2.72	2.72	---	5.50
2247	Pochontas Guano Co., Lynchburg, Va.	Spot Cash Tobacco Compound.	Semora.	7.96	1.11	1.08	2.19	2.66	3.69	3.69	---	8.00
2333	Powhatan Chemical Co., Richmond, Va.	White Leaf Tobacco Fertilizer.	Ronda.	8.29	1.81	.44	2.25	2.74	3.57	3.57	---	8.00
2506	Reidsville Fertilizer Co., Reidsville, N. C.	Climax Fertilizer.	Reidsville.	9.34	1.31	.28	1.59	1.93	2.58	---	---	17.66
2012	Richmond Guano Co., Richmond, Va.	Tip Top Fertilizer.	Shelby.	7.71	1.73	.86	2.59	3.15	3.78	---	---	21.00
2335	do.	Tip Top Tobacco Fertilizer.	Kernersville.	7.75	1.21	1.00	2.21	2.69	2.96	2.96	---	5.65
1736	Royster, F. S., Guano Co., Norfolk, Va.	Orinoco Tobacco Guano.	Edenton.	7.95	1.49	.68	2.17	2.64	3.09	3.09	---	5.40
5338	do.	do.	Walnut Cove.	8.00	---	---	1.85	2.25	4.12	4.12	---	8.00
1725	Southern Cotton Oil Co., Goldsboro, N. C.	Echo.	Mount Olive.	7.64	1.11	1.30	2.41	2.93	3.70	---	---	20.70
3023	Swift Fertilizer Works, Wilmington, N. C.	Swift's Gold Leaf Tobacco Grower.	Ararat.	8.02	1.39	.76	2.15	2.61	2.93	---	---	19.18
2836	Tuscarora Fertilizer Co., Atlanta, Ga.	Tuscarora Tobacco Fertilizer.	Winston.	7.73	.31	1.74	2.05	2.49	3.06	---	---	18.63
1931	United States Fertilizer Co., Baltimore, Md.	Farm Bell Crop Grower.	Burlington.	8.38	1.15	.90	2.06	2.50	3.50	---	---	19.65
2774	Venable Fertilizer Co., Richmond, Va.	Venable's Cotton Grower.	Cherryville.	6.68	1.47	.78	2.25	2.74	3.14	---	---	18.60
1991	Va.-Car. Chemical Co., Richmond, Va.	Durham Fertilizer Co.'s N. C. Official Farmers' Alliance Guano.	Whiteville.	9.14	1.41	.50	1.91	2.32	3.92	---	---	20.17
1720	do.	do.	Belcross.	7.54	1.37	.64	2.01	2.44	3.15	---	---	18.38
2040	do.	Old Dominion Guano Co.'s Osceola Tobacco Guano.	Durham.	8.75	1.57	.36	1.93	2.35	2.88	2.88	---	3.25
2988	do.	Powers, Gibbs & Co.'s Car. Golden Belt Ammono. Guano for Tobacco.	Elm City.	8.88	1.07	.68	1.75	2.13	2.83	2.83	---	3.00

ANALYSES OF COMMERCIAL FERTILIZERS—SPRING SEASON, 1913.

Laboratory Number.	Name and Address of Manufacturer.	Name of Brand.	Where Sampled.	Percentage Composition or Parts per 100.										Relative Value per Ton at Factory.
				Available Phosphoric Acid.	Water-soluble Nitrogen.	Organic Nitrogen.	Total Nitrogen.	Equivalent to Ammonia.	Potash.	Potash from Muriate.	Potash from Sulphate.	Chlorine.		
MIXED FERTILIZERS.														
Brands claiming-----														
2628	Va.-Car. Chemical Co., Richmond, Va.....	Southern Chem. Co.'s Pilot Ammoniated Guano Special for Tobacco.	Winston.....	8.00			2.06	2.50	3.00					\$18.85
1600	do.....	Va.-Car. Chemical Co.'s Blue Star.....	Mount Olive.....	8.32	1.35	.65	1.99	2.42	2.70	2.53	.17	1.90		18.55
2072	do.....	Va.-Car. Chemical Co.'s Superlative C. S. M. Guano.	Parkton.....	7.74	.35	1.98	2.33	2.83	3.07					19.82
2744	do.....	do.....	Wake Forest.....	8.21	.63	1.72	2.35	2.86	3.18					20.44
Brand claiming-----														
1789	N. C. Cotton Oil Co., Wilmington, N. C.....	Currie's Crop Grower.....	Clarkton.....	8.74	.88	1.10	1.99	2.42	2.93					19.17
Brand claiming-----														
2899	Planters Fertilizer and Phosphate Co., Charleston, S. C.....	Planters' Special Mixture.....	Dunn.....	8.00			2.06	2.50	4.00					19.85
Brands claiming-----														
2055	American Agricultural Chemical Co., New York, N. Y.....	Canton Chemical Special Compound.	Edenton.....	8.00			2.06	2.50	5.00					20.85
5336	Poconantas Guano Co., Lynchburg, Va.....	Carrington's Special Truck Grower, Eagle Mountain Brand.	Ridgeway.....	8.17	1.41	.78	2.19	2.66	5.02					21.57
Brands claiming-----														
2156	Farmville Oil and Fertilizer Co., Farmville, N. C.....	Chamblée & Sons' Special Guano.....	Zebulon.....	8.00			2.06	2.50	6.00					21.85
2972	N. C. Cotton Oil Co., Henderson, N. C.....	Americans' Pet.....	Lillington.....	8.02	.61	1.46	2.07	2.52	6.82					22.73
2617	do.....	Brewer's Special.....	Henderson.....	8.17			2.11	2.57	7.21					23.42
Brands claiming-----														
2156	Farmville Oil and Fertilizer Co., Farmville, N. C.....	Chamblée & Sons' Special Guano.....	Zebulon.....	8.00			2.26	2.75	2.00					18.69
2972	N. C. Cotton Oil Co., Henderson, N. C.....	Americans' Pet.....	Lillington.....	8.13	.89	1.36	2.26	2.75	3.20					20.01
2617	do.....	Brewer's Special.....	Henderson.....	8.06	.99	1.44	2.43	2.95	2.04					19.50
Brands claiming-----														
5850	N. C. Cotton Oil Co., Raleigh, N. C.....	Raleigh Standard Guano.....	Lucama.....	8.29	.75	1.38	2.13	2.59	2.13					18.54
Brands claiming-----														
5850	N. C. Cotton Oil Co., Raleigh, N. C.....	Raleigh Standard Guano.....	Lucama.....	8.14	1.15	1.40	2.55	3.10	2.10					20.14

1864	do	do	Dunn	8.78	.79	1.38	2.17	2.64	2.07	19.09
2158	Va.-Car. Chemical Co., Richmond, Va.	V.-C. C. Co.'s Royal Crown	Wendell	7.69	.69	1.60	2.29	2.78	2.08	19.22
5391	do	do	Raleigh	8.91			2.23	2.71	1.85	19.23
2082	do	V.-C. C. Co.'s Southern Cotton Grower	Kenly	8.00	.79	1.84	2.63	3.20	2.46	20.71
2798	Brand claiming	Hadley, Harris & Co., Wilson, N. C.	Wilson	8.00			2.26	2.75	2.50	19.19
2743	Brand claiming	N. C. Cotton Oil Co., Henderson, N. C.	Louisburg	8.45	1.31	.98	2.29	2.78	2.62	19.84
3000	Brand claiming	Va.-Car. Chemical Co., Richmond, Va.	Autryville	8.00			2.26	2.75	3.25	19.94
1785	Acme Mig. Co., Wilmington, N. C.	Acme Fertilizer	Clarkton	8.45	.61	1.34	1.95	2.37	3.35	19.14
1939	do	Acme Fertilizer for Tobacco	Kinston	8.00			2.47	3.00	2.50	19.57
2921	Armour Fertilizer Works, Wilmington, N. C.	Armour's No. 8-3-2.50 Fertilizer	Wilmington	8.69	.77	1.42	2.19	2.66	1.84	18.86
2084	Contentnea Guano Co., Wilson, N. C.	Contentnea Cotton Grower	Black Creek	8.00	1.41	1.18	2.59	3.15	3.11	20.07
1932	Va.-Car. Chemical Co., Richmond, Va.	Southern Chem. Co.'s George Washington Plant Bed for Tobacco	Burlington	8.21	1.19	1.54	2.73	3.32	2.57	21.42
2525	do	V.-C. C. Co.'s Atlas Guano	Greenville	8.53	1.17	1.58	2.75	3.34	2.61	21.84
1888	do	V.-C. C. Co.'s Split Silk	Clayton	8.08	1.39	.88	2.27	2.76	2.90	19.71
5864	Brand claiming	Acme Mig. Co., Wilmington, N. C.	Rockfish	8.00			2.47	3.00	3.00	21.39
5865	do	do	Rockfish	8.10	1.35	1.44	2.79	3.39	3.13	22.14
2173	do	do	Clarkton	8.54	1.13	1.38	2.51	3.05	3.01	21.24
5399	do	do	Stedman	8.90	1.13	1.36	2.49	3.03	2.73	21.20
1796	do	Acme 8-3-3 Fertilizer for Tobacco	Williamston	7.30	1.09	1.60	2.69	3.27	3.08	20.95
2332	do	do	Pilot Mountain	7.96	1.17	1.54	2.71	3.29	3.16	21.71
5331	do	Best's Fish Scrap Guano	Fayetteville	8.03	1.23	1.40	2.63	3.23	2.65	20.92
				8.16	1.35	1.24	2.59	3.15	3.10	21.32

ANALYSES OF COMMERCIAL FERTILIZERS—SPRING SEASON, 1913.

Laboratory Number.	Name and Address of Manufacturer.	Name of Brand.	Where Sampled.	Percentage Composition or Parts per 100.										Relative Value per Ton at Factory.
				Available Phosphoric Acid.	Water-soluble Nitrogen.	Organic Nitrogen.	Total Nitrogen.	Equivalent to Ammonia.	Total Potash.	Potash from Muriate.	Potash from Sulphate.	Chlorine.		
MIXED FERTILIZERS.														
Brands claiming														
1603	Acme Mfg. Co., Wilmington, N. C.	Best's Fish Scrap Guano	Elm City	8.00			2.47	3.00	3.00					\$20.57
1700	do	Pee Dee Special Fertilizer	Tabor	7.55	1.24	1.27	2.51	3.12	3.12					20.30
2418	American Agricultural Chemical Co., New York, N. Y.	Canton Chemical Superior High Grade Fertilizer.	Iron	7.76	1.73	.68	2.41	2.93	3.27					20.38
2500	do	Detrick's Kangaroo Complete Compound Bright Tobacco Grower.	Ayden	8.09	1.67	.76	2.43	2.95	2.99	2.99				20.48
2417	do	Detrick's Special Tobacco Fertilizer	Norlina	8.21	1.89	.72	2.61	3.17	3.28	3.28				21.63
22009	do	Detrick's Victory Cotton Fertilizer	Iron	8.00	1.41	.94	2.35	2.86	2.94					20.01
1759	do	Eureka Cotton-seed Meal Guano	Four Oaks	8.89	1.73	.74	2.47	3.00	3.03					21.40
1674	do	Lazaretto Special Tobacco and Potato Fertilizer.	Edenton	8.64	1.68	.77	2.45	2.98	2.91	2.91			6.80	20.98
1870	do	Zell's Bright Tobacco Grower	Durham	8.04	1.91	.80	2.71	3.29	3.32		3.32			21.94
2458	do	Zell's Reliance High Grade Manure	Statesville	7.63	1.85	.64	2.49	3.03	2.98					20.30
1593	American Fertilizer Co., Norfolk, Va.	American Eagle Guano	Clinton	7.86	3.06	.44	3.50	4.26	2.18					23.95
1889	do	J. G. Miller & Co's. Yellow Leaf	Norfolk	9.20	.55	1.62	2.17	2.61	2.95	2.95			5.10	20.54
1569	Armour Fertilizer Works, Atlanta, Ga.	Armour's Cotton Special	Rocky Mount	8.18	1.49	1.00	2.49	3.03	2.93					20.75
5375	do	Armour's Cotton Special	Goldsboro	7.54	1.32	1.12	2.49	3.03	3.08					20.32
2399	do	Armour's No. 8-3-3 Fertilizer	Black Mountain	8.01	1.39	.90	2.29	2.78	2.18					19.01
2826	do	Armour's Tobacco Special	Fuquay	8.14	.83	1.78	2.01	2.44	2.72				2.72	18.49

2818	Arps, George L., & Co., Norfolk, Va.	Quick Growth for All Crops	Edenton	8.04	1.67	.74	2.41	2.93	2.92	20.28
2558	Ashepoo Fertilizer Co., Charleston, S. C.	High Grade Ashepoo Bird and Fish Guano	Monroe	7.67	1.05	1.06	2.11	2.57	3.26	19.02
2222	Atlantic Chemical Co., Norfolk, Va.	Atlantic High Grade Guano	Edenton	8.94	1.23	1.20	2.43	2.95	2.88	21.13
2620	do.	Atlantic High Grade Tobacco Guano	Paschall	8.15	1.63	.74	2.37	2.88	3.23	6.35
2672	Atlantic Fertilizer Co., Wilmington, N. C.	Atlantic Cotton and Corn Fertilizer, High Grade	Princeton	8.31	1.57	.72	2.29	2.78	3.06	20.16
2308	do.	Atlantic Tobacco Fertilizer, High Grade	Four Oaks	8.17	1.11	1.06	2.17	2.64	3.37	19.84
1642	Baugh & Sons Co., Norfolk, Va.	Baugh's Grand Rapid High Grade Guano	Maxton	8.14	1.88	.55	2.43	2.95	3.31	20.84
1703	do.	Baugh's High Grade Tobacco Guano	Tabor	8.57	1.61	.92	2.53	3.08	3.23	21.57
5356	do.	do.	Grifton	8.35			2.43	2.95	2.91	7.15
2190	Bertie Cotton Oil Co., Aulander, N. C.	Bertie's Ideal Cotton Grower	Aulander	7.24	1.07	1.40	2.47	3.00	3.50	20.39
2557	Berkley Chemical Co., Norfolk, Va.	Advance Crop Grower	Monroe	7.84	1.61	.74	2.35	2.86	2.82	19.75
2808	do.	Berkley Tobacco Guano	Benson	7.99	1.85	.66	2.51	3.05	3.11	7.05
1835	Bowler Fertilizer Co., Boston, Mass.	Bowler's Eureka Cotton Compound	Greensboro	8.14	1.99	.60	2.59	3.15	3.15	21.35
2813	do.	Bowler's Tobacco Fertilizer	Grainger	8.11	1.73	.82	2.55	3.10	3.01	7.10
2157	Bryant Fertilizer Co., Alexandria, Va.	Bryant's High Grade Fertilizer	Newton	8.20	1.63	.92	2.55	3.10	2.65	20.74
2288	Burton, C. J., Guano Co., Baltimore, Md.	Burton's Best	Angier	8.19	1.61	.90	2.51	3.05	2.99	20.70
1775	do.	Tobacco Queen	Everetts	8.30	1.77	.94	2.71	3.29	3.22	9.10
2196	Caraleigh Phosphate and Fertilizer Works, Raleigh, N. C.	Eclipse Ammoniated Guano	Winton	7.35	1.33	1.00	2.33	2.83	2.93	19.33
5385	do.	Horne's Best	Goldsboro	9.23	.45	1.80	2.25	2.74	3.79	21.55
1877	do.	do.	Clayton	8.15	.45	2.14	2.59	3.15	3.40	21.61
5374	Carolina-Union Fertilizer Co., Norfolk, Va.	Carolina Union 3-8-3	Mebane	8.34	1.15	1.30	2.45	2.98	3.07	20.87
2058	do.	do.	Edenton	8.34	1.07	1.34	2.41	2.93	2.95	20.58
5342	Carolina Warehouse Co., Salisbury, N. C.	Farmers' Union 3-3-3 Guano	Chalybeate	8.12			2.93	3.56	4.34	23.95
5396	do.	do.	Denver	8.33	1.79	.74	2.53	3.08	3.96	22.08
2358	do.	do.	Jacksonville	8.60			2.35	2.86	4.16	21.77
5833	do.	do.	Mount Ulla	7.94	1.93	.60	2.53	3.08	3.04	20.81

ANALYSES OF COMMERCIAL FERTILIZERS—SPRING SEASON, 1913.

Laboratory Number.	Name and Address of Manufacturer.	Name of Brand.	Where Sampled.	Percentage Composition or Parts per 100.								Relative Value per Ton at Factory.	
				Available Phosphoric Acid.	Water-soluble Nitrogen.	Organic Nitrogen.	Total Nitrogen.	Equivalent to Ammonia.	Total Potash.	Potash from Muriate.	Potash from Sulphate.		Chlorine.
MIXED FERTILIZERS.													
	Brands claiming			8.00			2.47	3.00	3.00				\$20.57
5307	Carolina Warehouse Co., Salisbury, N. C.	Farmers' Union 8-3-3 Guano	China Grove	8.51	1.39	.78	2.17	2.64	3.08				19.85
2629	do	Farmers' Union 8-3-3 Tobacco Guano	Winston-Salem	7.78	2.03	.70	2.73	3.32	3.63	3.20	.43	2.40	22.10
1761	Clayton Oil Mill, Clayton, N. C.	Clayton Guano	Benson	8.22	.43	2.00	2.43	2.95	2.92				20.52
1614	do	C. O. M. Planters' Favorite	Selma	8.64	.51	2.02	2.63	3.08	3.57				21.97
2313	do	Clayton Special Tobacco Grower	Clayton	8.98	.51	2.03	2.59	3.15	3.18		3.18		22.14
2944	Coe-Mortimer Co., Charleston, S. C.	Coe-Mortimer Co.'s Tobacco Special	Reidsville	7.64	1.53	.62	2.15	2.61	4.98	2.13	2.85	1.60	20.89
1675	Columbia Guano Co., Norfolk, Va.	High Grade Cotton Guano	Edenton	8.47	1.36	1.31	2.67	3.25	3.26				22.10
1561	do	Hycro Tobacco Guano	Kinston	7.84	1.65	.84	2.49	3.03	3.23	3.23		4.80	20.74
2185	do	Olympia Cotton Grower	Lewiston	8.09	1.85	.80	2.65	3.22	3.26				21.67
2990	Combahoe Fertilizer Co., Charleston, S. C.	Combahoe High Grade Cotton Fertilizer.	Morven	8.04	.81	1.58	2.39	2.91	3.34				20.61
1595	Conestee Chemical Co., Wilmington, N. C.	Conestee 8-3-3 C. S. M. Guano	Warsaw	8.28	1.17	1.54	2.71	3.29	3.00				20.83
2044	do	Conestee Special Tobacco Fertilizer	Lumberton	8.30	1.31	1.34	2.65	3.22	2.64	2.64		6.60	21.24
1606	Contentnea Guano Co., Wilson, N. C.	Pick Leaf	Nashville	8.41	1.01	1.40	2.41	2.93	3.10				20.79
5845	do	Top Notch	Lucama	8.10	1.59	1.30	2.89	3.15	3.32				22.75
1605	do	do	Nashville	8.84	1.01	1.30	2.31	2.81	2.84				20.50
5372	do	Victor Tobacco Grower	Macesfield	8.16	1.43	1.10	2.53	3.08	6.33		6.33		24.30

ANALYSES OF COMMERCIAL FERTILIZERS—SPRING SEASON, 1913.

Laboratory Number.	Name and Address of Manufacturer.	Name of Brand.	Where Sampled.	Percentage Composition or Parts per 100.										Relative Value per Ton at Factory.	
				Available Phosphoric Acid.	Water-soluble Nitrogen.	Organic Nitrogen.	Total Nitrogen.	Equivalent to Ammonia.	Total Potash.	Potash from Muriate.	Potash from Sulphate.	Chlorine.			
MIXED FERTILIZERS.															
	Brands claiming.....			8.00			2.47	3.00	3.00						\$20.57
1596	Hampton Guano Co., Norfolk, Va.....	P. P. P. Princess Prolific Producer.....	Clinton.....	7.84	1.91	.72	2.63	3.20	3.04						21.14
2198	Hubbard Fertilizer Co., Baltimore, Md.....	Hubbard's Yellow Wrapper Guano.....	Kelford.....	8.90	1.63	.80	2.43	2.95	3.48	3.48				7.30	21.70
5808	Imperial Cotton Oil Co., Statesville, N. C.....	King Cotton Guano.....	Statesville.....	8.48	.21	1.36	1.57	1.91	2.00						17.23
2876	Imperial Co., Norfolk, Va.....	Imperial Pee Dee Cotton Grower.....	Steeds.....	8.63	1.59	.82	2.41	2.93	2.73						20.62
1852	do.....	Tobacco Guano.....	Greenville.....	8.33	1.47	.82	2.29	2.78	3.34	3.34				9.80	20.45
1616	do.....	X. L. O. Cotton Guano.....	Clinton.....	8.04	1.83	.74	2.57	3.12	2.86						20.89
2991	Interstate Chemical Corporation, Charlotte, N. C.	Planters' Preference.....	Polkton.....	8.80	.41	2.68	3.09	3.76	3.22						24.12
5323	do.....	do.....	Charlotte.....	9.58			2.31	2.81	2.72						21.04
2791	Lenoir Oil and Ice Co., Kinston, N. C.....	Caswell Cotton Grower.....	Ayden.....	8.88	.35	2.10	2.45	2.98	3.85						22.13
5573	Josey, N. B., Guano Co., Tarboro, N. C.....	Josey's Home Builder.....	Louisburg.....	9.10	1.00	1.34	2.43	2.95	6.47						24.87
1891	do.....	do.....	Elm City.....	7.84	.31	2.30	2.61	3.17	3.26						21.28
2740	do.....	Josey's Tip Top Tobacco Grower.....	Wake Forest.....	8.32	.69	1.66	2.35	2.86	3.46	3.46				10.30	20.82
2664	Lister's Agricultural Chemical Works, Newark, N. J.	Lister's Complete Manure.....	Franklinton.....	8.24	1.68	.80	2.48	3.02	3.15						20.98
2277	MacMurphy Co., Charleston, S. C.....	Special Cotton and Corn Guano.....	Wadesboro.....	8.03	1.25	1.40	2.65	3.22	3.32						21.68
3021	Marietta Fertilizer Co., Atlanta, Ga.....	Marietta Pride of Piedmont.....	Mount Airy.....	7.86	1.39	.96	2.35	2.86	2.95						19.89
1689	Martin, D. B., Co., Norfolk, Va.....	Martin's Bull Head Fertilizer.....	Edenton.....	8.58	1.16	1.07	2.23	2.71	4.18						21.27

5341	do	do	Chalybeate	8.03			2.31	2.81	3.46			20.30
5331	do	do	Fayetteville	10.01			2.31	2.81	2.87			21.58
5345	do	do	Duke	7.00			2.39	2.91	3.18			19.52
2571	do	Martin's Meal Mixture	New Bern	9.02	.93		1.10	2.03	2.47	2.92		19.56
1770	McNair Phosphate Co., Laurinburg, N. C.	Oscola	Rae ford	8.25	1.15		1.34	2.49	3.03	3.43		21.31
1854	Meadows, E. H. & J. A., Co., New Bern, N. C.	Meadows' Gold Leaf Tobacco Guano	New Bern	9.83	1.87		1.50	3.37	4.10	4.14	7.90	27.14
5382	do	do	Princeton	8.77	.93		1.50	2.43	2.95	3.13	5.70	21.23
1862	Miller Fertilizer Co., Baltimore, Md.	Standard	Dunn	8.05	1.61		.80	2.41	2.93	3.17		20.54
2214	do	Tobacco King	Ruffin	8.39	1.61		.82	2.43	2.95	3.36	9.90	21.12
2078	Navassa Guano Co., Wilmington, N. C.	Clarendon Tobacco Guano	Lucana	10.45	1.45		.68	2.13	2.59	2.53	.53 2.00	20.88
1652	do	Navassa High Grade Guano	Selma	9.33	2.36	.51		2.87	3.49	2.76		23.21
1617	do	Navassa Standard Meal Guano	Selma	8.10	.99		1.50	2.49	3.03	3.33		21.08
2269	N. C. Cotton Oil Co., Charlotte, N. C.	Dixie Standard Fertilizer	Waxhaw	8.15	1.25		1.50	2.75	3.34	3.08		21.96
2038	do	do	Charlotte	7.99	1.05		1.18	2.23	2.71	2.04		18.60
5337	N. C. Cotton Oil Co., Henderson, N. C.	Henderson High Grade Guano	Ridgeway	8.29				2.49	3.03	3.05		20.97
1827	do	do	Fuquay	8.49	1.11		1.58	2.69	3.27	2.92		21.86
2095	N. C. Cotton Oil Co., Wilmington, N. C.	Clute's Cotton Grower	Clinton	9.12	1.13		1.24	2.37	2.88	3.54		21.70
2067	do	Wilmington High Grade	Parkton	8.95	1.29		1.38	2.67	3.25	3.25		22.52
1892	do	do	Elm City	8.16	1.29		1.32	2.61	3.17	3.10		21.41
1777	New Bern Cotton Oil and Fertilizer Mills, New Bern, N. C.	Favorite Cotton Grower	Everetts	9.16	.77		1.78	2.55	3.10	3.88		22.82
1951	do	Foy's High Grade Fertilizer	New Bern	8.56	1.01		1.71	2.71	3.29	3.70		22.79
2005	do	Harvey's Special Meal and Fish Guano	Gritton	8.47	.33		2.18	2.51	3.05	4.50		22.66
1652	do	Lenoir Bright Leaf Tobacco Grower	New Bern	8.37	1.37		1.80	3.17	3.85	4.99	4.15	25.84
2003	do	Pitt's Prolific Golden Tobacco Grower	Gritton	9.27	.71		1.66	2.37	2.88	3.04	3.19	21.34
2203	Norfolk Fertilizer Co., Norfolk, Va.	Oriana for Cotton	Mount Gilead	7.95	1.71		.80	2.51	3.05	3.16		20.86
5809	do	do	Fayetteville	8.49	1.66		.62	2.28	2.77	2.87		20.09

ANALYSES OF COMMERCIAL FERTILIZERS—SPRING SEASON, 1913.

Laboratory Number.	Name and Address of Manufacturer.	Name of Brand.	Where Sampled.	Percentage Composition or Parts per 100.										Relative Value per Ton at Factory.
				Available Phosphoric Acid.	Water-soluble Nitrogen.	Organic Nitrogen.	Total Nitrogen.	Equivalent to Ammonia.	Total Potash.	Potash from Muriate.	Potash from Sulphate.	Chlorine.		
MIXED FERTILIZERS.														
Brands claiming.....														
2246	Norfolk Fertilizer Co., Norfolk, Va.....	Oriana Tobacco Guano.....	Ruffin.....	8.00	—	—	2.47	3.00	3.00	—	—	—	—	\$20.57
1607	Ober, G., & Sons Co., Baltimore, Md.....	Ober's Special Compound for Tobacco Rocky Mount.....	—	8.16	1.79	.84	2.63	—	3.16	3.16	—	—	7.00	21.55
2295	do.....	do.....	Angier.....	8.05	1.93	.80	2.73	3.32	3.42	2.73	.69	—	2.05	22.13
5807	do.....	do.....	Sharpsburg.....	7.96	1.61	.92	2.53	3.08	3.24	2.80	.44	—	2.10	21.03
5327	do.....	do.....	Roxboro.....	8.42	1.95	.82	2.77	3.37	3.27	2.93	.34	—	2.20	22.48
2159	Old Buck Guano Co., Richmond, Va.....	Old Buck Quiney Tobacco and Garden Guano.....	—	8.19	—	—	2.57	3.12	3.22	2.86	.36	—	2.15	21.33
1692	Pamlico Chemical Co., Washington, N. C.....	Pamlico Success Guano.....	Washington.....	8.84	2.15	.60	2.75	3.34	3.38	—	3.38	—	—	22.89
1824	do.....	Tobacco Growers' Friend.....	Bayboro.....	8.95	1.04	1.57	2.61	3.17	3.70	—	—	—	—	22.72
2599	Pan-American Fertilizer Co., New York, N. Y.....	Pan-American Special Cotton Grover Edenton.....	—	8.20	1.05	1.70	2.75	3.34	3.84	3.84	—	—	8.50	22.77
5304	Patapsco Guano Co., Baltimore, Md.....	Choctaw Guano.....	Statesville.....	8.67	.93	1.06	1.99	2.42	2.32	—	—	—	—	18.48
1667	do.....	do.....	Fremont.....	7.89	1.27	1.16	2.43	2.95	2.94	—	—	—	—	20.25
2390	Pearsall & Co., Wilmington, N. C.....	Pearsall's Use-Me High Grade Guano. Fairmont.....	—	8.05	1.50	.73	2.23	2.71	3.02	—	—	—	—	19.63
3010	Peruvian Guano Corporation, Charleston, S. C.....	Lobos Peruvian Mixture.....	Kinston.....	8.10	1.13	1.00	2.13	2.59	3.62	—	—	—	—	19.86
1893	Piedmont-Mount Airy Guano Co., Baltimore, Md.....	Levering's Reliable Tobacco Guano.....	Elm City.....	8.18	2.29	.30	2.59	3.15	3.36	—	—	—	—	21.60
2031	do.....	Piedmont High Grade Ammoniated Bone and Potash.....	Edenton.....	8.19	.89	1.64	3.53	4.29	3.15	3.15	—	—	4.70	25.35
1654	Pine Level Oil Mill Co., Pine Level, N. C.....	Pine Level High Grade Fertilizer.....	Benson.....	8.62	.75	1.60	2.35	2.86	3.11	—	—	—	—	20.74
				7.84	.90	1.71	2.61	3.17	4.67	—	—	—	—	22.69

5805	Planters Cotton-seed Oil Co., Rocky Mount, N. C.	Tar River Special Guano.	Sharpsburg	7.29	1.75	.76	2.51	3.05	3.37			20.47
2086	do	Tobacco Guano.	Whitakers	8.96	.33	1.08	2.41	2.93	3.28	3.28	3.00	21.47
2098	Planters Fertilizer and Phosphate Co., Charleston, S. C.	Planters' Soluble Guano.	Clinton	8.47	1.05	1.44	2.49	3.03	2.60			20.68
2261	Pocahontas Guano Co., Lynchburg, Va.	Farmers' Favorite Apex Brand	Woodsdale	8.41	1.17	.94	2.11	2.57	3.86			20.29
1750	Pocomoke Guano Co., Norfolk, Va.	Harvey's High Grade Monarch.	Cisco	8.51	1.81	.82	2.63	3.20	2.92			21.62
5800	do	do	Stedman	7.79	1.67	.88	2.55	3.10	3.56			21.28
1706	do	Monarch Tobacco Grower	Fair Bluff	8.43	1.81	.76	2.57	3.12	3.14	3.14	6.45	21.52
1656	Powhatan Chemical Co., Richmond, Va.	Johnson's Special Fertilizer	Selma	7.77	1.52	1.23	2.75	3.34	3.32			21.86
1945	do	P. C. Co.'s Hustler.	Kinston	7.99	1.63	1.10	2.73	3.32	3.29			21.95
2607	Rasin Monumental Co., Baltimore, Md.	Rasin's Celebrated Universal Fertilizer.	Lincolnton	9.30	1.35	1.06	2.41	2.93	2.95			21.44
2217	do	Rasin's Complete Fertilizer	Smithfield	8.87	1.55	.68	2.23	2.71	3.22			20.57
2216	do	Rasin's Cotton Compound.	Smithfield	8.75	1.71	.70	2.41	2.93	2.72			20.72
1655	do	Rasin's Gold Standard.	Selma	11.83	.84	1.39	2.23	2.71	2.80			22.87
5340	do	do	Chalybeate	8.57			2.55	3.10	2.76			21.18
5851	do	do	Lucama	9.65	1.25	.46	1.71	2.08	3.11			18.98
1882	Read Phosphate Co., Charleston, S. C.	Read's C. S. M. Mixture.	Red Springs	9.24	.39	2.00	2.39	2.91	2.96			21.31
1881	do	Read's High Grade Cotton Grower	Red Springs	8.09	1.25	1.32	2.57	3.12	3.38			21.45
2505	Reidsville Fertilizer Co., Reidsville, N. C.	Broad Leaf Tobacco Guano	Reidsville	8.41	1.67	.32	1.99	2.42	1.91	1.66	.25	17.84
2249	do	Royal Fertilizer	Reidsville	7.47	2.05	.20	2.85	3.46	2.67			21.36
1767	Richmond Guano Co., Richmond, Va.	Carolina Bright Tobacco Fertilizer	Pine Level	8.09	1.59	1.24	2.83	3.44	3.46	3.46	8.05	22.63
1580	do	Gilt Edge Fertilizer	Rockingham	7.64	1.59	1.20	2.79	3.39	3.56			22.15
2845	do	Gilt Edge Tobacco Fertilizer	High Point	9.52	1.39	.68	2.07	2.52	3.64	3.13	.51	20.90
2940	Robertson Fertilizer Co., Norfolk, Va.	Big Cropper Guano, High Grade	Croft	8.00	1.47	1.26	2.73	3.32	2.94			21.61
2372	do	do	Rosemary	8.37	.95	1.28	2.23	2.71	3.26			20.16
1829	do	Old Kentucky High Grade Tobacco Manure.	Fuquay	8.39	1.51	1.14	2.65	3.22	3.09	3.09	6.50	21.77
2747	do	Robertson's Special Formula for Tobacco.	Winterville	7.74	1.61	.98	2.59	3.15	3.63	3.63	7.85	21.47

ANALYSES OF COMMERCIAL FERTILIZERS—SPRING SEASON, 1913.

Laboratory Number.	Name and Address of Manufacturer.	Name of Brand.	Where Sampled.	Percentage Composition or Parts per 100.										Relative Value per Ton at Factory.	
				Available Phosphoric Acid.	Water-soluble Nitrogen.	Organic Nitrogen.	Total Nitrogen.	Equivalent to Ammonia.	Total Potash.	Potash from Muriate.	Potash from Sulphate.	Chlorine.			
MIXED FERTILIZERS.															
Brands claiming															
1916	Robertson Fertilizer Co., Norfolk, Va.	Robertson's Special Formula for Tobacco.	Whiard	8.00	1.09	1.40	2.40	3.03	3.00	3.00	---	---	---	6.35	20.41
2579	do.	do.	Leaksville.	8.25	1.09	1.14	2.23	2.71	2.86	2.86	---	---	---	6.95	19.65
1574	Roberson Mfg. Co., Lumberton, N. C.	Silver Dollar	Lumberton.	7.71	1.07	1.66	2.73	3.32	3.79	3.79	---	---	---	---	22.19
1780	Robersonville Guano Co., Robersonville, N. C.	Roberson High Grade Meal and Fish Guano.	Robersonville	8.63	1.43	1.36	2.79	3.39	3.69	---	---	---	---	---	23.17
1563	Royster, F. S., Guano Co., Norfolk, Va.	Bonanza Tobacco Guano	Kinston.	8.07	1.59	.82	2.41	2.93	3.19	---	---	---	---	---	20.57
2527	do.	Eagle Special Tobacco Guano	Greenville	8.07	1.63	.78	2.41	2.93	4.77	4.77	---	---	7.20	---	22.15
1716	do.	Marlboro High Grade Cotton Grower. Roper.	---	8.53	1.94	.63	2.57	3.12	3.02	---	---	---	---	---	21.49
1897	Scotland Neck Guano Co., Scotland Neck, N. C.	Carolina Cotton-seed Meal and Fish Scrap Guano.	Tarboro.	8.00	.15	2.18	2.33	2.83	3.62	---	---	---	---	---	20.61
5318	do.	State Farm Cotton-seed Meal and Fish Scrap Guano.	Black Creek.	10.21	---	---	2.25	2.74	3.59	---	---	---	---	---	22.23
2377	Southern Chemical Co., Roanoke, Va.	Pride of Virginia High Grade.	Stoneville.	8.50	1.62	.55	2.17	2.64	3.22	---	---	---	---	---	19.98
1772	Southern Cotton Oil Co., Charlotte, N. C.	Peacock.	Rae ford.	9.40	.45	1.90	2.35	2.86	2.78	---	---	---	---	---	21.11
1884	Southern Cotton Oil Co., Fayetteville, N. C.	Fayetteville Oil Mill Special Cotton Grower.	Red Springs.	8.59	.69	1.76	2.45	2.98	3.97	---	---	---	---	---	21.98
5329	do.	do.	Fayetteville.	8.01	.77	1.74	2.51	3.05	3.67	---	---	---	---	---	21.42
2389	Southern Cotton Oil Co., Gibson, N. C.	Moon High Grade Fertilizer.	Gibson.	8.41	.09	2.62	2.71	3.29	2.76	---	---	---	---	---	21.71
2218	Southern Cotton Oil Co., Goldsboro, N. C.	B. G. Thompson's Special Cotton and Tobacco Guano.	Smithfield.	8.99	.91	1.78	2.69	3.27	3.14	3.14	---	---	5.30	---	22.53
1995	do.	Edgerton's Old Reliable.	Pinetops.	9.16	.73	1.68	2.41	2.93	2.96	---	---	---	---	---	21.33

2809	Southern Cotton Oil Co., Shelby, N. C.	Peacock	Lawndale	7.44	1.21	1.34	2.55	3.10	3.02			20.43
1811	Southern Exchange Co., Maxton, N. C.	Correct Cotton Compound	Rowland	8.14	1.87	.54	2.41	2.93	3.03			20.48
2049	do.	Jack's Best Compound	Maxton	7.77	1.47	.84	2.31	2.81	2.94			19.63
5373	Swift Fertilizer Works, Atlanta, Ga.	Swift's Carolina Tobacco Grower, High Grade.	Wilmington	8.62	1.55	.92	2.47	3.00	2.94		2.94	21.07
2497	do.	do.	Ayden	8.60	.55	1.82	2.37	2.88	2.88		2.88	20.57
1571	do.	Swift's Ruralist High Grade Guano.	Burgaw	7.74	1.21	1.14	2.35	2.86	2.96			19.80
2612	Tuscarora Fertilizer Co., Wilmington, N. C.	Tuscarora Blood and Bone	Red Springs	7.35	1.29	1.06	2.35	2.86	2.90			19.38
1867	do.	Tuscarora Cotton Special	Dunn	7.88	2.09	.32	2.41	2.93	2.96			20.17
2038	do.	Tuscarora Tobacco Special	Hester	8.38	.89	1.52	2.41	2.93	3.10		3.10	20.76
1582	Union Guano Co., Winston, N. C.	Union Annotated Guano	Wadesboro	8.34	.81	1.50	2.31	2.81	3.47			20.68
5802	do.	Union Homestead Guano	Fayetteville	8.77	.69	1.82	2.51	3.05	3.02			21.45
5803	do.	do.	Vander	8.81	.47	1.88	2.35	2.86	3.31			21.11
5397	do.	do.	Fayetteville	8.00	1.03	1.36	2.39	2.91	2.47			19.71
2772	do.	Union Renown Guano.	Waco	10.96	1.94	.56	2.50	3.04	3.12			23.48
1624	do.	Victoria High Grade Tobacco Guano.	Clinton	7.52	2.21	.59	2.83	3.44	3.45		4.80	22.10
2039	do.	do.	Madison	9.00	.87	1.04	1.91	2.32	3.33		6.30	19.45
2088	United States Fertilizer Co., Baltimore, Md.	Farm Bell Cotton Special	Whitakers	8.66	1.45	1.04	2.49	3.03	3.73			21.98
1954	do.	Farm Bell Tobacco Special	Kinston	8.44	1.75	1.04	2.79	3.39	3.74		8.60	23.05
1971	Upshur, R. L., Guano Co., Norfolk, Va.	Cotton Guano	Elizabeth City	8.00	1.49	1.36	2.85	3.46	2.86			22.03
1831	Vance Guano Co., Henderson, N. C.	Fish Brand Tobacco Manure	Fuquay	5.99	1.31	1.54	2.85	3.46	3.42		3.42	20.78
2347	do.	do.	Apex	5.89	1.15	1.50	2.65	3.22	3.30		3.30	19.73
2979	Venable Fertilizer Co., Richmond, Va.	Farmers' Union Special Tobacco Guano.	Sloam	7.99	1.60	.88	2.53	3.08	3.65		6.45	21.47
2073	Va.-Car. Chemical Co., Richmond, Va.	Adams' Special	Parkton	8.61	.81	1.64	2.45	2.98	3.00			21.04
2254	do.	Allison & Addison's A. A. Guano	Mooreville	8.59	1.49	.94	2.43	2.95	2.80			20.71
1800	do.	Bright Leaf Tobacco Grower	Bethel	8.32	1.07	1.58	2.65	3.22	3.02		2.30	21.64
2107	do.	Croom's Special Cotton Fertilizer	Bisco	8.89	1.57	1.06	2.63	3.20	3.45			22.50

ANALYSES OF COMMERCIAL FERTILIZERS—SPRING SEASON, 1913.

Laboratory Number.	Name and Address of Manufacturer.	Name of Brand.	Where Sampled.	Percentage Composition or Parts per 100.										Relative Value per Ton at Factory.
				Available Phosphoric Acid.	Water-soluble Nitrogen.	Organic Nitrogen.	Total Nitrogen.	Equivalent to Ammonia.	Total Potash.	Potash from Muriate.	Potash from Sulphate.	Chlorine.		
MIXED FERTILIZERS.														
Brands claiming														
1728	Va.-Car. Chemical Co., Richmond, Va.	Croom's Special Cotton Fertilizer.	Mount Olive.	8.00			2.47	3.00	3.00					\$20.57
2693	do.	do.	Bailey.	7.92	1.31	1.36	2.67	3.25	2.87					21.21
1566	do.	Davie & Whittle's Owl Brand Guano for Tobacco.	Kinston.	8.30	.49	1.92	2.41	2.93	2.90					20.49
1996	do.	Durham Fertilizer Co.'s Bright Leaf Tobacco Guano.	Enfield.	7.98	1.65	.80	2.45	2.98	2.86	2.73	.13	2.05		20.33
1670	do.	Durham Fertilizer Co.'s Gold Medal Guano.	Fremont.	8.67	1.49	.80	2.29	2.78	3.05	3.05		3.15		20.47
2617	do.	Durham Fertilizer Co.'s Yellow Leaf Tobacco Grower.	Drewry.	8.89	1.70	.57	2.27	2.76	3.31					20.84
5390	do.	do.	Raleigh.	9.29	1.73	.46	2.19	2.66	2.78	2.66	.12	2.00		20.34
2472	do.	Lynchburg Guano Co.'s Bright Bell Guano.	Windsor.	8.49			2.31	2.81	2.67	2.67		3.20		20.01
2973	do.	Myatt's Special High Grade Fertilizer.	Broadway.	8.60	1.99	.72	2.71	3.29	3.43					22.55
1584	do.	Norfolk and Carolina Chemical Co.'s Amazon High Grade Manure.	Wadesboro.	8.16	1.45	1.00	2.45	2.98	3.74					21.37
1751	do.	Norfolk and Carolina Chemical Co.'s Bright Leaf Tobacco Grower.	Washington.	8.30	2.15	.28	2.43	2.95	2.85					20.53
2007	do.	Old Dominion Guano Co.'s Farmers' Friend Fertilizer, High Grade.	Ayden.	7.45	2.23	.82	3.05	3.71	4.44	2.06	2.38	1.55		23.95
1607	do.	do.	Edenton.	8.00	.97	1.38	2.35	2.86	4.17					21.21
	do.	do.	Edenton.	8.64	1.06	1.51	2.57	3.12	3.16					21.73
2359	do.	Old Dominion Guano Co.'s Farmers' Friend Special Tobacco Fertilizer.	Hubert.	8.68	1.67	.54	2.21	2.69	2.68	2.68		3.90		19.77
1626	do.	Powers, Gibbs & Co.'s Old Kentucky High Grade Tobacco Manure.	Selma.	9.15	1.47	.68	2.15	2.61	2.97	2.97		3.05		20.23
2153	do.	do.	Ayden.	7.20	1.58	.90	2.48	3.02	2.96	2.96		2.40		19.86

2219	do.	Royal Fertilizer H. G.	Smithfield	8.02	1.85	1.22	3.07	3.71	3.39	23.50
2751	do.	do.	Winterville	6.83	1.97	.58	2.55	3.10	3.19	20.05
2368	do.	Tinsley & Co.'s Richmond Brand	Edenton	7.38	1.75	.94	2.69	3.27	3.29	21.23
1874	do.	Travers & Co.'s Big Leaf Tobacco	Durham	9.38	1.43	.90	2.33	2.83	3.10	21.33
2089	do.	Va.-Car. Chem. Co.'s Amazon High Grade Manure.	Whitakers	8.36	1.49	.66	2.15	2.61	3.05	19.60
2050	do.	Va.-Car. Chem. Co.'s Blake's Best.	Maxton	8.60	.65	1.80	2.45	2.98	2.90	20.92
5393	do.	do.	Raleigh	8.52	.97	1.18	2.15	2.61	2.71	19.41
1783	do.	Va.-Car. Chem. Co.'s Diamond.	Robersonville	8.33	.91	1.38	2.29	2.78	3.09	20.20
2727	do.	Va.-Car. Chem. Co.'s Excelsior Tobacco Special.	Mount Olive	8.72	1.17	1.16	2.33	2.83	4.33	21.96
3032	do.	Va.-Car. Chem. Co.'s Gold Medal High Grade Tobacco Guano.	Durham	8.55	2.21	.60	2.81	3.42	2.98	22.48
2414	do.	Va.-Car. Chem. Co.'s Red Cliff High Grade Cotton Grower.	Littleton	9.47	1.51	.80	2.31	2.81	3.29	21.51
5389	do.	Va.-Car. Chem. Co.'s Royal High Grade Fertilizer.	Raleigh	8.86			3.05	3.71	2.57	23.35
1758	do.	Va.-Car. Chem. Co.'s Special High Grade Tobacco Fertilizer.	Selma	7.97	.73	1.76	2.49	3.03	3.48	21.10
2757	do.	Va. State Fertilizer Co.'s Bull Dog Soluble Guano.	Belhaven	7.14	2.09	.82	2.91	3.54	3.36	22.01
2051	Wilson Chemical Co., Wilson, N. C.	East Carolina Tobacco Grower	Black Creek	8.09	1.23	1.50	2.73	3.32	3.45	22.20
2032	Winborne Guano Co., Norfolk, Va.	King's Guano	Edenton	7.94	1.33	1.04	2.37	2.88	3.04	20.14
2549	do.	Winborne's Special Tobacco Guano.	Edenton	8.50	1.63	1.08	2.71	3.29	3.53	22.56
2715	Young, J. R., Fertilizer Co., Norfolk, Va.	Young's New Process Guano for Tobacco.	Oxford	8.42	1.33	.84	2.17	2.64	2.89	19.58
2225	do.	Young's Special Guano for Cotton.	Edenton	8.72	1.69	.84	2.53	3.08	3.16	21.63
2900	do.	do.	Dunn	8.75	1.51	.84	2.35	2.86	3.14	20.88
Brands claiming				8.00		2.47	3.00	4.00		21.57
2122	Acme Mfg. Co., Wilmington, N. C.	Acme Crop Grower for Tobacco.	Wallaco	8.21	1.31	1.44	2.75	3.34	3.88	22.74
2054	American Agricultural Chemical Co., New York, N. Y.	Canton Chemical Co.'s Homestead Protector.	Edenton	8.48	2.23	.70	2.93	3.56	4.28	24.22
2712	do.	Zell's Tobacco Fertilizer	Creedmoor	8.70	.73	1.62	2.35	2.86	2.79	20.40
2886	Conestee Chemical Co., Wilmington, N. C.	Conestee Plumb-Good Fertilizer.	Maxton	7.59	1.79	1.24	3.03	3.68	4.40	24.05
1836	Bowker Fertilizer Co., Boston, Mass.	Bowker White Star Compound	Greensboro	7.90	1.57	.58	2.15	2.61	3.78	19.92

ANALYSES OF COMMERCIAL FERTILIZERS—SPRING SEASON, 1913.

Laboratory Number.	Name and Address of Manufacturer.	Name of Brand.	Where Sampled.	Percentage Composition or Parts per 100.								Relative Value per Ton at Factory.	
				Available Phosphoric Acid.	Water-soluble Nitrogen.	Organic Nitrogen.	Total Nitrogen.	Equivalent to Ammonia.	Total Potash.	Potash from Sulphate.	Chlorine.		
MIXED FERTILIZERS.													
Brands claiming.....													
2523	Dixie Guano Co., Suffolk, Va.....	Dixie Maximum Bone.....	Greenville.....	8.00			2.47	3.00	4.00				\$21.57
2889	Elba Mfg. Co., Maxton, N. C.....	Elba Eclipse.....	John Station.....	8.02	1.35	1.36	2.71	3.29	4.38				22.98
5384	Farmers Guano Co., Raleigh, N. C.....	Special Tobacco Guano.....	Goldsboro.....	8.23	1.53	.92	2.45	2.98	4.19				21.89
1914	Farmers Oil and Fertilizer Co., Farmville, N. C.....	Pride of Pitt.....	Farmville.....	7.06			2.65	3.22	5.10	2.93	2.17	2.20	22.58
1964	Foreign Products Co., Baltimore, Md.....	Privatt's 3-S-4 Guano.....	Edenton.....	7.66	.95	1.24	2.19	2.66	4.88				20.97
1851	Hubbard Fertilizer Co., Baltimore, Md.....	Hubbard's Royal Ensign.....	New Bern.....	8.02	.57	1.80	2.37	2.88	5.01				22.18
2330	Meadows, E. H. & J. A. Co., New Bern, N. C.....	Baker's Special Tobacco Guano.....	Comfort.....	7.84	1.81	.62	2.43	2.95	4.42				21.68
2174	Navassa Guano Co., Wilmington, N. C.....	Orton Guano.....	Rowland.....	10.82	.79	1.44	2.23	2.71	3.91	3.91		5.80	23.01
1898	N. C. Cotton Oil Co., Wilmington, N. C.....	Bullock's Cotton Grower.....	Rowland.....	9.90	1.57	.72	2.29	2.78	4.46				22.99
2726	Peruvian Guano Corporation, Charleston, S. C.....	Cormorant High Grade Peruvian Guano Mixture.....	Burgaw.....	8.08	1.17	1.50	2.67	3.25	4.18				22.67
3029	Pocahontas Guano Co., Lynchburg, Va.....	Indian Tobacco Grower.....	Haw River.....	8.57	2.31	.22	2.53	3.08	4.20				22.54
2023	Southern Exchange Co., Maxton, N. C.....	Bull of the Woods Fertilizer.....	Wilmington.....	8.82	1.73	.70	2.43	2.95	4.17	4.17		8.20	22.31
2415	Vance Guano Co., Henderson, N. C.....	Fish Brand Tobacco Manure.....	Littleton.....	8.05	1.67	.66	2.33	2.83	4.16				21.19
1707	Va.-Car. Chemical Co., Richmond, Va.....	Charlotte Oil and Fert. Co.'s Groom's Fair Bluff Special Tobacco Fertilizer.	Charlotte.....	9.11	.97	1.30	2.27	2.76	3.14			3.14	20.87
1576	do.....	Va.-Car. Chemical Co.'s Farmers' Success.	Lumberton.....	8.47	1.01	1.38	2.39	2.91	4.96			4.96	22.62
2684	do.....	Va.-Car. Chemical Co.'s High Grade Tobacco Fertilizer.	Bailey.....	6.93	2.11	.68	2.79	4.61	4.54				22.49
				8.47	1.43	1.02	2.45	2.98	4.22	4.22		4.95	22.13

2297	do	Va.-Car. Chemical Co.'s Lion High Grade Tobacco Fertilizer.	Dunn	9.11	2.73	.52	3.25	3.95	3.81	2.60	1.21	1.95	25.66
	Brands claiming			8.00			2.47	3.00	5.00				22.57
2833	Armour Fertilizer Co., Greensboro, N. C.	Armour's Special for Tobacco	Winston	6.95	1.05	1.40	2.45	2.98	4.94		4.94		21.48
2311	Banner Fertilizer Co., Benson, N. C.	Banner Cotton Grower	Benson	8.75	.63	1.86	2.49	3.03	5.07				23.40
2499	Baugh & Sons Co., Norfolk, Va.	Baugh's Special Tobacco Guano	Ayden	8.19	2.01	.38	2.39	2.91	5.34	5.34		7.40	22.75
2180	Beta Fertilizer Co., Beta, N. C.	Beta Special	Beta	8.13	1.67	.70	2.37	2.88	4.43				21.70
2971	Carolina Warehouse Co., Salisbury, N. C.	Farmers' Union 8-3-5	Jonesboro	8.62	1.83	.78	2.61	3.17	4.18				22.90
2131	Contentnea Guano Co., Wilson, N. C.	Victor Tobacco Grower	Mount Olive	8.29	1.37	1.24	2.61	3.17	4.63		4.63		23.05
5844	do	do	Lucama	7.80	1.23	1.32	2.55	3.10	5.10	3.33	1.77	2.50	22.83
5824	do	Victor Top Grower	Macesfield	8.75	1.01	1.40	2.41	2.93	3.19				21.19
1980	Farmville Oil and Fertilizer Co., Farmville, N. C.	Sterling for Tobacco Guano	Farmville	7.02	1.07	1.38	2.45	2.98	5.68	5.68		10.70	22.29
1662	Fremont Oil Mill Co., Fremont, N. C.	Fremont Oil Mill Co.'s Special for Tobacco	Fremont	7.82	1.30	1.27	2.57	3.12	5.01	5.01		8.85	22.84
2949	Imperial Co., Norfolk, Va.	Imperial Special Mixture	Stoneville	7.50	1.85	1.00	2.85	3.46	4.96				23.68
1788	Martin, D. B., & Co., Norfolk, Va.	Martin's Cotton and Tobacco Special	Clarkton	7.36	1.53	.82	2.35	2.86	5.53	5.53		5.40	22.02
2223	Meadows, E. H. & J. A. Co., New Bern, N. C.	Brooks' Special Tobacco Grower	Comfort	8.15	.55	1.80	2.35	2.86	5.41	5.41		9.65	22.61
5822	do	Brooks' Special Tobacco Guano	Winterville	8.03	.75	1.44	2.19	2.66	5.07				21.49
2436	Navassa Guano Co., Wilmington, N. C.	Maultsby's Tobacco Guano	Whiteville	9.54	1.17	1.12	2.29	2.78	5.07		5.07		23.27
2373	do	Navassa Blood and Meal Mixture	Scotland Neck	8.20	1.22	1.11	2.33	2.83	4.29				21.46
2028	Pamlico Chemical Co., Washington, N. C.	Pamlico High Grade Tobacco Grower	Washington	8.33	.99	1.64	2.63	3.20	5.56	5.56		6.00	24.10
5370	do	do	Macesfield	8.00	1.01	1.48	2.49	3.03	5.89	5.89		5.65	23.55
1666	Patapsco Guano Co., Baltimore, Md.	Patapsco Plant Food for Tobacco, Potatoes, and Truck	Fremont	7.37	1.80	.59	2.39	2.91	5.19	5.19		11.10	21.86
2691	Powhatan Chemical Co., Richmond, Va.	Tomlinson Special Fertilizer	Bailey	7.15	1.45	.84	2.29	2.78	5.90				21.95
1575	Robertson Mfg. Co., Lumberton, N. C.	Glove Guano	Lumberton	7.29	.21	2.32	2.53	3.08	4.68				21.87
2668	Royster, F. S., Guano Co., Norfolk, Va.	Eagle Special Tobacco Guano	Fuquay Springs	8.62	1.81	.62	2.43	2.95	5.06	5.06		8.15	23.02
5553	Va.-Car. Chemical Co., Richmond, Va.	Va.-Car. Chem. Co.'s Excelsior Tobacco Special	Lucama	8.97	.81	1.46	2.27	2.76	4.95		4.95		22.57

ANALYSES OF COMMERCIAL FERTILIZERS—SPRING SEASON, 1913.

Laboratory Number.	Name and Address of Manufacturer.	Name of Brand.	Where Sampled.	Percentage Composition or Parts per 100.										Relative Value per Ton at Factory.
				Available Phosphoric Acid.	Water-soluble Nitrogen.	Organic Nitrogen.	Total Nitrogen.	Equivalent to Ammonia.	Total Potash.	Muriate.	Potash from Sulphate.	Chlorine.		
MIXED FERTILIZERS.														
Brands claiming.....														
2312	Armour Fertilizer Works, Wilmington, N. C.	Armour's No. 836 for Tobacco Fertilizer.	Grifton.....	8.00	1.21	1.40	2.47	3.00	6.00	-----	-----	-----	-----	\$23.57
2954	Craven Chemical Co., New Bern, N. C.	Craven Chemical Co.'s Standard Tobacco Guano.	Vanceboro.....	7.62	1.41	1.44	2.85	3.46	6.44	6.44	-----	-----	6.65	23.60
2876	Josey, N. B., Guano Co., Tarboro, N. C.	Special Formula Guano.	Grifton.....	7.71	.94	1.52	2.46	2.99	6.94	-----	-----	-----	7.70	25.27
1677	Miller Fertilizer Co., Baltimore, Md.	Miller's 8-3-6.	Elizabeth City.....	8.74	1.74	.75	2.49	3.03	5.50	-----	-----	-----	-----	24.21
1792	Swift Fertilizer Works, Atlanta, Ga.	Swift's Piedmont High Grade Guano.	Clarkton.....	8.32	.67	1.74	2.41	2.93	5.25	-----	-----	-----	-----	23.82
Brands claiming.....														
1612	Bowler Fertilizer Co., Boston, Mass.	Bowler's Red Oak Tobacco Fertilizer.	Selma.....	8.04	1.91	.50	2.41	2.93	6.92	3.53	3.39	2.65	-----	24.29
1613	Contentnea Guano Co., Wilson, N. C.	Government Formula No. 2.	Selma.....	8.55	1.13	1.36	2.49	3.03	6.84	-----	-----	-----	-----	24.99
2817	Va.-Car. Chemical Co., Richmond, Va.	Buyers' Mixture.	Grangers.....	8.95	1.99	.22	2.21	2.59	6.82	-----	-----	-----	-----	24.16
Brands claiming.....														
2125	Cooper Guano Co., Wilmington, N. C.	Cooper's Tobacco Special.	Wallace.....	9.71	1.87	.46	2.33	2.83	6.58	2.80	3.78	2.10	-----	25.10
1790	N. C. Cotton Oil Co., Wilmington, N. C.	Best's Tobacco Grower.	Clarkton.....	8.67	1.17	1.18	2.35	2.86	8.32	-----	8.32	-----	-----	25.99
2691	do.	do.	Clinton.....	8.69	1.00	1.48	2.48	3.02	7.62	-----	7.62	-----	-----	25.86
Brands claiming.....														
1705	Baugh & Sons Co., Norfolk, Va.	Baugh's Fruit and Berry Guano.	Lumberton.....	8.14	1.93	.50	2.43	2.95	9.95	-----	-----	-----	-----	27.57
2489	Southern Cotton Oil Co., Fayetteville, N. C.	Southern Cotton Oil Co.'s Melon Guano.	Jonesboro.....	8.24	1.33	1.07	2.37	2.83	10.93	-----	-----	-----	-----	27.48
														28.30

Brands claiming.....		8.00	2.88	3.50	5.00	24.30				
2077	Farmers Cotton Oil Co., Wilson, N. C.....	Regal Tobacco Guano.....	Wilson.....	1.49	1.58	3.07	3.73	5.16	25.65	
2285	do.....	do.....	Selma.....	1.26	1.49	2.75	3.34	4.93	4.10	
2692	Powhatan Chemical Co., Richmond, Va.....	Tomlinson Favorite Fertilizer.....	Bailey.....	7.92	2.17	.88	3.05	3.71	5.46	
Brand claiming.....		8.00	3.29	4.00	3.00	24.02				
2203	Farmville Oil and Fertilizer Co., Farmville, N. C.....	Uncle Sam's Tobacco Grower.....	Farmville.....	7.88	1.35	1.60	2.95	3.59	4.45	11.00
Brands claiming.....		8.00	3.29	4.00	4.00	25.02				
5347	Acme Mfg. Co., Wilmington, N. C.....	Acme O. K. Fertilizer.....	Dunn.....	8.16			3.35	4.07	4.16	25.57
2121	do.....	do.....	Wallace.....	7.97	1.61	1.50	3.11	3.78	3.70	23.93
1699	do.....	Quickstep Fertilizer.....	Chadbourne.....	7.65	1.90	1.47	3.37	4.10	4.20	25.24
5823	American Agricultural Chemical Co., New York, N. Y.....	Canton Chemical Co.'s BonoTobacco Fertilizer.....	Winterville.....	8.32	2.43	.18	3.21	3.90	4.21	8.80
2233	do.....	Lazaretto Carolina Cotton Food.....	Edenton.....	8.58	2.51	.78	3.29	4.00	4.08	25.62
1592	American Fertilizer Co., Norfolk, Va.....	N. C. and S. C. Cotton Grower.....	Clinton.....	8.09	2.75	.44	3.29	4.00	5.32	26.42
2042	do.....	do.....	Lumberton.....	7.05	2.47	.80	3.27	3.98	5.21	25.29
2020	Armour Fertilizer Works, Wilmington, N. C.....	Armour's No. 844 Fertilizer.....	Wilmington.....	7.66	2.13	1.14	3.27	3.98	3.96	24.59
2019	do.....	Armour's Special Truck Fertilizer.....	Wilmington.....	7.36	1.98	1.19	3.17	3.85	3.98	23.92
2699	Atlantic Chemical Co., Norfolk, Va.....	Oriental High Grade Guano.....	Scotland Neck.....	8.44	1.87	1.22	3.09	3.76	4.24	24.81
2866	Atlantic Fertilizer Co., Wilmington, N. C.....	Atlantic Cotton and Corn Fertilizer, High Grade.....	Four Oaks.....	7.14	1.19	2.14	3.33	4.05	3.82	24.23
4702	Baugh & Sons Co., Norfolk, Va.....	Baugh's Fish, Bone, and Potash Compound.....	Tabor.....	8.36	2.05	1.22	3.27	3.98	4.00	25.26
5311	do.....	do.....	Palmyra.....	8.07	2.47	.74	3.21	3.90	4.34	25.09
2789	do.....	Baugh's Yucatan Special Tobacco Fertilizer.....	Winterville.....	8.35	2.79	.66	3.45	4.19	4.00	26.00
1734	Berkley Chemical Co., Norfolk, Va.....	Victory Special Crop Grower.....	Edenton.....	8.42	2.55	.70	3.25	3.95	4.17	25.40
2189	Bertie Cotton Oil Co., Aulander, N. C.....	Bertie's Meal Mixture.....	Aulander.....	8.08	1.13	2.32	3.45	4.19	3.71	25.47
3009	Bowker Fertilizer Co., Boston, Mass.....	Bowker's Blood, Bone, and Fish Guano.....	Graingers.....	7.75	2.31	.70	3.01	3.66	3.82	23.44
2968	Burton, C. J., Guano Co., Baltimore, Md.....	J. W. C. Special.....	Everetts.....	8.29	2.55	.76	3.31	4.02	3.80	25.16
2998	Bryant Fertilizer Co., Alexandria, Va.....	Bryant's High Grade Guano.....	Autryville.....	8.28	.87	2.26	3.13	3.81	3.90	24.50

ANALYSES OF COMMERCIAL FERTILIZERS—SPRING SEASON, 1913.

Laboratory Number.	Name and Address of Manufacturer.	Name of Brand.	Where Sampled.	Percentage Composition or Parts per 100.										Relative Value per Ton at Factory.
				Available Phosphoric Acid.	Water-soluble Nitrogen.	Organic Nitrogen.	Total Nitrogen.	Equivalent to Ammonia.	Total Potash.	Potash from Muriate.	Potash from Sulphate.	Chlorine.		
MIXED FERTILIZERS.														
Brands claiming														
2476	Bryant Fertilizer Co., Alexandria, Va.	Bryant's High Grade Meal Fertilizer.	Cameron.	8.00				3.29	4.00	4.00				\$25.02
2783	Caraleigh Phosphate and Fertilizer Co., Raleigh, N. C.	Caraleigh Meal and Tankage Mixture.	Goldsboro.	9.04	1.55	1.36	2.91	3.54	1.03					24.39
2784	do.	Rhamkattie Special Tobacco Guano.	Goldsboro.	8.82	.85	2.32	3.17	3.85	4.01					25.89
2763	do.	Special 8-4-4.	Raleigh.	6.24	2.35	.74	3.09	3.76	6.07			6.07		24.66
2037	Carolina-Union Fertilizer Co., Norfolk, Va.	Carolina Union 4-8-4.	Edenton.	8.00	2.03	1.20	3.23	3.93	4.26					25.03
2201	Carolina Warehouse Co., Salisbury, N. C.	Farmers' Union 8-4-4.	Siler City.	8.29	1.33	2.58	2.91	3.54	3.72					23.40
5306	do.	do.	China Grove.	8.23	2.11	.94	3.05	3.71	3.66					23.88
2312	Clayton Oil Mill, Clayton, N. C.	Clayton Oil Mill Cotton Grower.	Clayton.	8.05	1.81	1.12	2.93	3.56	4.11					23.66
2924	Coc-Mortimer Co., Charleston, S. C.	High Grade Morco Guano.	Laurinburg.	8.89	1.39	1.90	3.29	4.00	3.44					25.26
1887	Columbia Guano Co., Norfolk, Va.	Columbia Special Truck Guano.	Greensboro.	7.15	1.83	1.34	3.17	3.85	3.65					23.40
5367	do.	Pelican Ammoniated Guano.	Scotland Neck.	7.88	2.51	.86	3.37	4.10	4.10					25.35
2318	do.	Trojan Tobacco Guano.	Scotland Neck.	8.06	1.99	1.18	3.17	3.85	4.58					25.15
2888	Conestee Chemical Co., Wilmington, N. C.	Conestee O. K. Fertilizer.	John Station.	8.51	2.29	.90	3.19	3.88	3.94	3.94			6.70	25.00
1941	Contentnea Guano Co., Wilson, N. C.	Climax Tobacco Grower.	Kinston.	8.30	2.23	1.34	3.57	4.34	4.08					26.54
2393	Cooper Guano Co., Wilmington, N. C.	Cooper's Helma.	Fairmont.	8.14	1.69	1.82	3.51	4.27	4.14			4.14		26.21
2022	do.	Cooper's Horto.	Wilmington.	8.01	2.45	.80	3.25	3.95	4.12					24.98
				8.95	1.67	1.50	3.17	3.85	4.38					25.50

2484	Coweta Fertilizer Co., Newnan, Ga.....	Coweta Animal Bone.....	Murfreesboro.....	7.62	2.41	.68	3.09	3.76	4.56	24.40
2485	Craven Chemical Co., New Bern, N. C.....	Hanover Standard Guano.....	Battleboro.....	7.88	1.85	1.04	2.89	3.51	4.12	23.35
1900	Dixie Guano Co., Suffolk, Va.....	Dixie 8-4-4 Guano.....	Gliden.....	8.47	2.45	.98	3.43	4.17	4.32	26.35
1028	Eastern Cotton Oil Co., Hertford, N. C.....	Matt White's Special.....	Hobbsville.....	7.43	1.32	1.65	2.97	3.61	4.04	23.20
2045	Elba Mfg. Co., Maxton, N. C.....	Elba Superior Fertilizer.....	Maxton.....	8.39	1.33	1.98	3.31	4.02	4.80	26.25
1721	Farmers Guano Co., Raleigh, N. C.....	Farmers' Blood and Bone.....	Goldsboro.....	8.90	1.57	1.22	2.79	3.39	4.11	23.84
1913	Farmville Oil and Fertilizer Co., Farmville, N. C.....	Carolina Chief.....	Farmville.....	8.62	1.47	1.84	3.31	4.02	4.82	26.48
1690	Fremont Oil Mill Co., Fremont, N. C.....	Fremont High Grade Guano.....	Fremont.....	7.99	1.74	1.11	2.85	3.46	4.33	23.49
2682	Georgia Chemical Works, Augusta, Ga.....	Cardinal High Grade.....	Siler City.....	9.15	2.09	.80	2.89	3.51	3.93	24.30
2519	Grandy, N. G., & Co., Elizabeth City, N. C.....	Grandy's High Grade Bargain Guano.....	Elizabeth City.....	7.54	2.25	1.10	3.35	4.07	4.41	25.27
2969	Hampton Guano Co., Norfolk, Va.....	Little's Favorite Crop Grower.....	Oak City.....	7.90	2.61	.84	3.45	4.19	4.08	25.68
1850	Hubbard Fertilizer Co., Baltimore, Md.....	Hubbard's Noxall.....	New Bern.....	8.57	2.71	.52	3.23	3.93	4.16	25.44
2222	Imperial Co., Norfolk, Va.....	Snowflake Cotton Grower.....	Edenton.....	8.42	2.69	.74	3.43	4.17	4.04	26.02
2927	Interstate Chemical Corporation, Charlotte, N. C.....	High Grade Ammoniated Fertilizer.....	Lilesville.....	8.70	.39	2.62	3.01	3.66	3.42	23.89
5371	Joscy, N. B., Guano Co., Tarboro, N. C.....	Joscy's Cotton-seed Meal and Fish Scrap Guano.....	Bracebridge.....	8.15	1.13	2.20	3.33	4.05	4.59	25.91
5812	do.....	do.....	Hobgood.....	7.49	1.88	1.09	2.97	3.61	4.68	23.89
1776	do.....	do.....	Robersonville.....	6.75	1.17	1.98	3.15	3.83	5.57	24.86
2439	MacMurphy Co., Charleston, S. C.....	Special Cotton and Corn Guano.....	Chadbourne.....	8.69	2.09	1.34	3.43	4.17	4.22	26.45
2167	McNair Phosphate Co., Laurinburg, N. C.....	Floradora.....	Laurinburg.....	8.71	1.91	1.46	3.37	4.10	4.33	26.32
2987	Marietta Fertilizer Co., Atlanta, Ga.....	Marietta Fertilizer.....	Concord.....	8.20	2.09	1.16	3.25	3.95	4.73	25.76
2572	Martin, D. B., Co., Baltimore, Md.....	Martin's Red Star Brand Fertilizer.....	New Bern.....	8.67	2.17	.72	2.89	3.51	3.59	23.53
1723	do.....	do.....	Goldsboro.....	8.02	2.03	.82	2.85	3.46	3.21	22.40
1853	Meadows, E. H. & J. A., Co., New Bern, N. C.....	Meadows' Ideal Tobacco Guano.....	New Bern.....	9.86	1.37	1.90	3.27	3.98	4.61	4.15
5383	do.....	do.....	Goldsboro.....	8.85	1.19	1.64	2.83	3.44	4.67	9.30
5394	do.....	do.....	Tuscarora.....	7.80	1.19	1.96	3.15	3.83	4.09	4.80
1863	Miller Fertilizer Co., Baltimore, Md.....	Everett's Special Cotton Grower.....	Dunn.....	8.50	2.45	.78	3.23	3.93	4.28	25.50

ANALYSES OF COMMERCIAL FERTILIZERS—SPRING SEASON, 1913.

Laboratory Number.	Name and Address of Manufacturer.	Name of Brand.	Where Sampled.	Percentage Composition or Parts per 100.										Relative Value per Ton at Factory.
				Available Phosphoric Acid.	Water-soluble Nitrogen.	Organic Nitrogen.	Total Nitrogen.	Equivalent to Ammonia.	Total Potash.	Potash from Muriate.	Potash from Sulphate.	Chlorine.		
MIXED FERTILIZERS.														
Brands claiming-----														
2445	Miller Fertilizer Co., Baltimore, Md.	Miller's Ideal Potato	Lexington.	8.26	2.47	.78	3.25	3.95	4.46	-----	-----	-----	-----	\$25.02
1988	Navassa Guano Co., Wilmington, N. C.	Corse Tobacco Guano.	Whiteville.	9.20	2.41	.38	2.79	3.39	3.70	-----	3.70	-----	-----	25.54
2345	do.	Navassa High Grade Fertilizer.	Gulf.	8.37	2.27	.90	3.17	3.85	4.10	-----	-----	-----	-----	23.70
1597	do.	Special Meal Fertilizer.	Warsaw.	8.55	1.83	1.34	3.17	3.85	4.46	-----	-----	-----	-----	24.95
5830	do.	Special Truck Guano.	Fayetteville.	9.17	1.51	.94	2.45	2.98	3.06	-----	-----	-----	-----	25.47
1771	N. C. Cotton Oil Co., Henderson, N. C.	Two in One for Cotton.	Lillington.	8.67	.31	2.14	3.45	4.19	4.51	-----	-----	-----	-----	21.60
1809	N. C. Cotton Oil Co., Wilmington, N. C.	Bullock's High Grade Guano.	Rowland.	8.77	1.91	1.62	3.53	4.29	4.12	-----	-----	-----	-----	26.80
2910	do.	Wilmington Full Value.	Cerro Gordo.	8.40	1.31	1.96	3.27	3.98	4.10	-----	-----	-----	-----	26.84
1598	do.	Wilmington Truck Grover.	Clinton.	8.28	1.90	1.55	3.45	4.19	4.40	-----	-----	-----	-----	25.39
1711	New Bern Cotton Oil and Fertilizer Mills, New Bern, N. C.	Oriole Tobacco Grover.	Roper.	8.87	1.31	2.02	3.33	4.05	4.86	4.86	-----	4.10	-----	26.26
2840	do.	do.	Fremont.	8.69	1.47	1.76	3.23	3.93	4.66	4.66	-----	4.10	-----	26.83
2656	Norfolk Fertilizing Co., Norfolk, Va.	Oriana Complete Fertilizer.	Elkton.	8.08	2.33	.78	3.11	3.78	3.55	-----	-----	-----	-----	26.05
5810	do.	Oriana First Step Tobacco Guano.	Fayetteville.	8.47	1.83	.68	2.51	3.05	3.08	3.08	-----	9.05	-----	23.88
1562	Ober, G., & Sons Co., Baltimore, Md.	Ober's High Grade Fertilizer.	Kinston.	9.20	2.11	1.18	3.29	4.00	4.42	-----	-----	-----	-----	21.24
5863	do.	do.	Fayetteville.	9.31	2.45	.98	3.43	4.17	5.01	-----	-----	-----	-----	26.52
2670	Old Buck Guano Co., Richmond, Va.	Old Buck Florida General Truckee.	LaGrange.	6.82	2.45	.96	3.41	4.14	4.55	-----	-----	-----	-----	27.82
1823	Pamlico Chemical Co., Washington, N. C.	8-4-4 Guano.	Bayboro.	7.97	2.15	1.60	3.75	4.56	5.60	-----	-----	-----	-----	25.01
														8.522

1915	Pamlico Chemical Co., Washington, N. C.	Pamlico Bull's Eye Tobacco Guano.	Stokes.	8.48	1.49	1.72	3.21	3.90	4.70	4.70	6.20	25.81
5834	Pan-American Fertilizer Co., New York, N. Y.	Pan-American Favorite Compound.	Palmyra.	7.53	1.51	1.68	3.19	3.88	4.32			24.49
2109	do.	do.	Avoca.	8.97	2.19	1.10	3.29	4.00	2.94			24.83
1665	Patapsco Guano Co., Baltimore, Md.	Patapsco Cotton and Tobacco Special.	Fremont.	8.20	2.51	.68	3.19	3.88	4.13	4.13		24.91
2915	do.	do.	Ayden.	8.36	2.47	.76	3.23	3.93	3.48	3.48	8.40	24.57
2655	Pearall & Co., Wilmington, N. C.	Pearall's Fish and Bone Compound Guano.	Lumberton.	7.99	1.03	1.64	2.67	3.25	4.87			23.27
2192	Piedmont-Mount Airy Guano Co., Baltimore, Md.	Piedmont Unexcelled Guano.	Alaskie.	8.38	1.37	1.74	3.11	3.78	3.45			24.06
2669	Pine Level Oil Mill Co., Pine Level, N. C.	Xantho Tobacco Guano.	Pine Level.	8.77	1.39	1.36	2.75	3.34	3.86	2.20	1.66	23.30
2481	Planters Cotton-seed Oil Co., Rocky Mount, N. C.	Gorham High Grade.	Battleboro.	8.52	.77	1.90	2.67	3.25	4.13			23.01
2097	Pocomoke Guano Co., Norfolk, Va.	Planters' Special Cotton Fertilizer.	Clinton.	8.87	1.65	1.62	3.27	3.98	3.70			25.47
2006	Powhatan Chemical Co., Richmond, Va.	Faultless Ammoniated Superphosphate.	Ayden.	8.30	2.61	.74	3.35	4.07	3.98			25.52
1778	Roberson Mfg. Co., Lumberton, N. C.	North State Special.	Robersonville.	7.92	2.35	1.10	3.45	4.19	5.00			26.62
1573	Robertson Fertilizer Co., Norfolk, Va.	Gold Dollar.	Lumberton.	8.39	1.63	1.44	3.07	3.73	4.28			24.72
2110	Royster, F. S., Guano Co., Norfolk, Va.	Wood's Winner High Grade Guano.	Elizabeth City.	7.85	1.29	1.90	3.19	3.88	4.44			24.80
1894	do.	Jupiter High Grade.	Speed.	8.16	2.73	.66	3.39	4.12	4.10			25.68
1794	do.	Milo Tobacco Guano.	Mount Olive.	8.37	2.07	1.28	3.35	4.07	4.10	4.10	7.35	25.70
1858	do.	Royster's High Grade Special Tobacco Guano.	Greenville.	8.00	2.47	.98	3.45	4.19	3.70	3.70	6.05	25.39
1766	do.	Truckers' Delight.	Benson.	7.90	2.63	.86	3.49	4.24	4.38			26.15
2149	Scotland Neck Guano Co., Scotland Neck, N. C.	Noah Biggs' Cotton-seed Meal and Fish Scrap Guano.	Winterville.	7.72	1.15	1.98	3.13	3.81	5.01			25.10
1610	do.	do.	Nashville.	8.00	1.45	1.76	3.21	3.90	4.08			24.76
2170	Southern Cotton Oil Co., Charlotte, N. C.	Melonite.	Laurinburg.	9.04	1.71	1.50	3.21	3.90	4.34			25.06
5801	Southern Cotton Oil Co., Fayetteville, N. C.	Southern Cotton Oil Co.'s Special Mixture.	Stedman.	8.27	1.47	1.38	2.85	3.46	5.14			24.55
2388	Southern Cotton Oil Co., Gibson, N. C.	Conqueror Fertilizer, High Grade.	Gibson.	9.18	1.17	2.20	3.37	4.10	3.94			26.36
2490	Southern Cotton Oil Co., Goldsboro, N. C.	Southern Cotton Oil Co.'s Special Mixture.	Jonesboro.	8.99	2.37	1.60	3.97	4.83	4.35			29.11
5871	Southern Cotton Oil Co., Rocky Mount, N. C.	do.	Scotland Neck.	8.00	1.29	2.00	3.29	4.00	4.94			25.96
5870	do.	do.	Scotland Neck.	8.24	1.07	1.58	2.65	3.22	3.79			22.34

ANALYSES OF COMMERCIAL FERTILIZERS—SPRING SEASON, 1913.

Laboratory Number.	Name and Address of Manufacturer.	Name of Brand.	Where Sampled.	Percentage Composition or Parts per 100.										Relative Value per Ton at Factory.
				Available Phosphoric Acid.	Water-soluble Nitrogen.	Organic Nitrogen.	Total Nitrogen.	Equivalent to Ammonia.	Total Potash.	Potash from Muriate.	Potash from Sulphate.	Chlorine.		
MIXED FERTILIZERS.														
Brands claiming														
2037	Southern Cotton Oil Co., Wilson, N. C.	Southern Cotton Oil Co.'s Special Mixture	Enfield	8.00			3.29	4.00	4.00					\$25.02
1833	Southern Exchange Co., Maxton, N. C.	Two Fours Guano	Red Springs	8.03	1.03	1.92	2.95	3.59	4.40					24.02
2748	Swift Fertilizer Works, Atlanta, Ga.	Swift's Majestic for Tobacco	Winterville	8.12	2.53	.74	3.27	3.98	4.13					25.17
2237	do.	Swift's Monarch High Grade Guano	Goldsboro	7.84	1.75	1.02	2.77	3.37	4.22			4.22		22.91
5381	do.	do.	Goldsboro	8.14	2.07	1.66	3.73	4.53	3.78					26.77
2707	do.	Swift's Monarch Vegetable Guano, High Grade	Edenton	7.50	2.43	.90	3.33	4.05	4.88					25.62
2613	Tuscarora Fertilizer Co., Wilmington, N. C.	Tuscarora Fertilizer No. 844	Red Springs	7.65	.77	2.46	3.23	3.93	4.06					24.51
1620	Union Guano Co., Winston, N. C.	Union Premium Guano	Clinton	7.35	1.12	1.77	2.89	3.51	4.15					22.90
1879	United States Fertilizer Co., Baltimore, Md.	Farm Bell Majestic Guano	Clayton	8.40	2.16	1.11	3.27	3.98	4.19					25.48
2223	Upshur, R. L., Guano Co., Norfolk, Va.	Special 8-4-4	Edenton	7.90	1.83	1.62	3.45	4.19	4.57					26.14
2645	Vance Guano Co., Henderson, N. C.	Brodie's Best-Vance	Henderson	7.44	1.59	1.94	3.53	4.29	4.24					25.76
2292	do.	do.	Fuquay Springs	8.29	1.73	1.34	3.07	3.73	4.45					24.81
2367	Va.-Car. Chemical Co., Richmond, Va.	Durham Fertilizer Co.'s High Grade Guano	Edenton	7.16	1.51	1.66	3.17	3.85	4.03					24.39
5366	do.	Old Dominion Guano Co.'s Special for Tobacco	Bracebridge	7.55	3.05	.30	3.35	4.07	4.26					25.12
1784	do.	do.	Robersonville	8.63	2.45	.72	3.17	3.85	4.27			4.27		3.85
2787	do.	Tinsley & Co.'s Strawberry Grower	Goldsboro	8.11	1.49	1.46	2.95	3.59	4.11			4.11		3.30
				7.80	2.69	.98	3.67	4.46	4.12					26.55

2586	do	Va.-Car. Chemical Co.'s Carr's Crop Grower	Asheville	9.19	2.05	.74	2.79	3.39	3.81	23.80
5815	do	Va.-Car. Chemical Co.'s Farmers' Choice	Oak City	7.53	1.41	2.00	3.41	4.14	5.33	26.43
2468	do	do	Windsor	8.14	2.57	.54	3.11	3.78	3.27	23.64
1957	do	do	Kinston	9.49	1.41	1.42	2.83	3.44	3.20	23.63
5354	do	Va.-Car. Chemical Co.'s Fish and Meal Guano	Parkton	8.47			3.09	3.76	4.27	24.87
1583	do	Va.-Car. Chemical Co.'s Special	Rockingham	8.09	2.99	.44	3.43	4.17	4.74	26.55
1802	do	do	Williamston	8.75	2.43	1.30	3.73	4.53	3.80	27.35
5821	do	do	Winterville	8.03	2.47	.90	3.37	4.10	3.93	25.31
2661	do	do	Franklinton	9.04	2.19	.54	2.73	3.32	5.22	24.82
1718	Winborne Guano Co., Norfolk, Va.	Big Triumph Guano	Beasley	8.14	2.03	1.36	3.39	4.12	3.90	25.46
2224	Young, J. R., Fertilizer Co., Norfolk, Va.	Young's 4-8-4 Crop Grower	Edenton	8.34	2.45	.80	3.25	3.95	3.99	25.15
Brands claiming										
2601	American Fertilizer Co., Norfolk, Va.	Peruvian Mixture		8.00			3.29	4.00	5.00	26.02
2921	Royster, F. S., Guano Co., Norfolk, Va.	Cobb's High Grade for Tobacco	Edenton	8.98	2.89	.56	3.45	4.19	4.64	27.21
1586	Va.-Car. Chemical Co., Richmond, Va.	Powers, Gibbs & Co.'s Truck Farmers' Special Ammoniated Guano.	Rockingham	8.10	3.63	.28	3.91	4.75	5.43	29.14
2366	do	V-C-C Co.'s Long Leaf Tobacco Grower	Washington	8.47	2.31	.80	3.11	3.78	5.51	26.19
Brands claiming										
5386	Caraleigh Phosphate and Fertilizer Works, Raleigh, N. C.	Rhankatte Special Tobacco Guano	Goldsboro	8.10	1.88	1.26	3.11	3.78	6.07	26.42
2410	do	do	Morganton	7.93	2.45	.78	3.23	3.93	6.66	27.36
2600	Carolina Union Fertilizer Co., Norfolk, Va.	Carolina Union 4-8-6	Edenton	7.23	1.73	1.46	3.19	3.88	8.48	28.38
2407	Carolina Warehouse Co., Salisbury, N. C.	Farmers' Union 8-4-6 Guano	Vance	8.09	2.53	.54	3.07	3.73	3.91	24.62
5818	do	do	Vance	9.36	3.13	.06	3.19	3.88	4.54	26.36
2927	Interstate Chemical Corporation, Char- lotte, N. C.	High Grade Special Truck Guano	Rockingham	8.97	1.45	1.84	3.29	4.00	6.02	27.91
2100	Union Guano Co., Winston, N. C.	Union Guano for Cotton and Tobacco	Clinton	9.09	2.89	.28	3.17	3.85	6.13	27.62
Brand claiming										
5368	Scotland Neck Guano Co., Scotland Neck, N. C.	Special Formula Guano	Macclesfield	8.33	1.41	1.76	3.17	3.85	8.86	29.67

ANALYSES OF COMMERCIAL FERTILIZERS—SPRING SEASON, 1913.

Laboratory Number.	Name and Address of Manufacturer.	Name of Brand.	Where Sampled.	Percentage Composition or Parts per 100.								Relative Value per Ton at Factory.	
				Available Phosphoric Acid.	Water-soluble Nitrogen.	Organic Nitrogen.	Total Nitrogen.	Equivalent to Ammonia.	Total Potash.	Potash from Sulfate.	Chlorine.		
MIXED FERTILIZERS.													
Brands claiming													
2881	Imperial Co., Norfolk, Va.	Pumpelly's Piedmont Tobacco Grower.	Samarcand	8.77	.31	2.70	3.01	3.66	8.61				29.14
1955	United States Fertilizer Co., Baltimore, Md.	Farm Bell Excelsior Guano	Kinston	8.44	2.35	1.20	3.55	4.32	7.36				29.87
Brand claiming													
2437	Navassa Guano Co., Wilmington, N. C.	Enterprise Strawberry Grower.	Whiteville	8.36	1.61	1.64	3.25	3.95	9.62				30.79
Brands claiming													
2815	Contentnea Guano Co., Wilson, N. C.	Tobacco Grower.	Graingers	8.85	1.53	2.22	3.75	4.56	7.49	7.49			31.20
2904	Farmville Oil and Fertilizer Co., Farmville, N. C.	Davis' Special Guano.	Farmville	8.09	1.51	2.08	3.59	4.36	6.61				28.97
2799	Powhatan Chemical Co., Richmond, Va.	Tomlinson's Best Fertilizer.	Wilson	8.34	2.65	.72	3.37	4.10	7.67				29.33
2901	Royster, F. S., Guano Co., Norfolk, Va.	Royster's Best Guano.	Wilson	7.66	2.59	1.20	3.79	4.61	6.76				29.57
1671	Va.-Car. Chemical Co., Richmond, Va.	Muse's Special	Fremont	7.38	1.94	1.09	3.03	3.68	7.64				27.01
Brands claiming													
2588	Asheville Packing Co., Asheville, N. C.	Asheville Packing Co.'s Extra High Grade Vegetable Special.	Asheville	7.10	2.75	1.38	4.13	5.02	4.24				27.98
1890	Josey, N. B., Guano Co., Tarboro, N. C.	Josey's Truck Guano.	Tarboro	8.66	1.97	1.36	3.33	4.05	6.46				28.24
1715	Piedmont-Mount Airy Guano Co., Baltimore, Md.	Piedmont General Truck Grower.	Plymouth	8.23	2.39	1.72	4.11	5.00	4.80				29.46
5820	Powhatan Chemical Co., Richmond, Va.	King Truck.	Robersonville	6.90	2.87	1.40	4.27	5.19	5.22				29.36
1632	Richmond Guano Co., Richmond, Va.	Southern Trucker	Hobbsville	7.33	2.88	1.37	4.25	5.17	4.94				29.39

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ANALYSES OF COMMERCIAL FERTILIZERS—SPRING SEASON, 1913.

Laboratory Number.	Name and Address of Manufacturer.	Name of Brand.	Where Sampled.	Percentage Composition or Parts per 100.							Relative Value per Ton at Factory.	
				Available Phosphoric Acid.	Water-soluble Nitrogen.	Organic Nitrogen.	Total Nitrogen.	Equivalent to Ammonia.	Potash from Muriate.	Potash from Sulphate.		Chlorine.
MIXED FERTILIZERS.												
Brands claiming												
2241	American Fertilizer Co., Norfolk, Va.	American Bone Mixture	Reidsville	9.00			.82	1.00	2.00			\$13.54
2776	Columbia Guano Co., Norfolk, Va.	Columbia Special	Kernersville	9.76	.67	.28	.95	1.16	1.93			14.70
2075	Marietta Fertilizer Co., Atlanta, Ga.	Marietta Beef, Blood, and Bone	North Wilkesboro	9.40	.49	.36	.85	1.03	1.97			14.00
2769	Powhatan Chemical Co., Richmond, Va.	Magic Wheat Grower	Waco	9.12	.41	.50	.91	1.11	2.15			14.18
2421	Royster, F. S., Guano Co., Norfolk, Va.	Royster's Special	Coolmeec	9.01	.59	.32	.91	1.11	2.11			14.02
2716	Va.-Car. Chemical Co., Richmond, Va.	V.-C. C. Co.'s Baltimore Special Mixture.	Durham	9.78	.45	.44	.89	1.08	1.80			14.34
Brands claiming				8.76	.43	.28	.71	.86	1.90			12.77
				9.00			.82	1.00	3.00			14.54
2400	Armour Fertilizer Works, Greensboro, N. C.	Armour's No. 913 Fertilizer	Black Mountain	7.95	1.45	.88	2.33	2.83	2.49			19.43
2559	Atlantic Chemical Co., Norfolk, Va.	Atlantic Fish Guano	Monroe	9.25	.61	.40	1.01	1.23	2.96			15.53
2679	do	Atlantic Grain Guano	Ellenboro	9.04	.49	.40	.89	1.08	3.36			15.23
2454	Navassa Guano Co., Wilmington, N. C.	Long's Wheat and Grass Guano	Newton	8.69	.23	.62	.85	1.03	3.10			14.49
1819	Patapco Guano Co., Baltimore, Md.	Coon Brand Guano	Concord	9.50	.63	.26	.89	1.08	2.79			15.08
2444	Royster, F. S., Guano Co., Norfolk, Va.	Royster's Grain Guano	Lexington	9.08	.45	.38	.83	1.01	3.17			14.83
2315	do	do	China Grove	9.00	.47	.32	.79	.96	3.00			14.42
2699	Tuscarora Fertilizer Co., Wilmington, N. C.	Fertilizer No. 913	Greensboro	8.84	.29	.86	1.15	1.40	3.10			15.89
2077	Union Guano Co., Winston, N. C.	B. S. Ammoniated Guano	Elkin	9.20	.81	.58	1.39	1.69	3.50			17.62
2648	do	do	Liberty	10.87	.17	.56	.73	.89	2.17			15.02

2303	Va.-Car. Chemical Co., Richmond, Va.	Bernhardt's Grain and Crop Guano	Liberty	10.56	.35	.48	.83	1.01	2.47	-----	15.47
2504	-----do-----	McCormick's Wheat and Grain Guano	Greensboro	9.25	1.03	.56	1.59	1.93	2.97	-----	17.97
	Brand claiming			9.00	-----	-----	1.03	1.25	1.00	-----	13.42
2765	Farmers Cooperative Fertilizer Co., Blackstone, Va.	Walk Over for Corn	Townsville	8.97	.33	.86	1.19	1.45	1.52	-----	14.59
	Brand claiming			9.00	-----	-----	1.00	1.22	2.00	-----	14.30
2713	Young, J. R., Fertilizer Co., Norfolk, Va.	Young's Corn Grower	Oxford	8.95	.68	.66	1.34	1.63	2.04	-----	15.72
	Brand claiming			9.00	-----	-----	1.70	2.07	4.00	-----	19.24
1876	Clayton Oil Mill, Clayton, N. C.	Wayside Special	Clayton	8.42	.27	1.80	2.07	2.52	3.24	-----	19.51
	Brand claiming			9.00	-----	-----	1.65	2.00	1.00	-----	16.03
1873	Va.-Car. Chemical Co., Richmond, Va.	A. & A.'s Star Brand Guano	Durham	8.57	1.55	.28	1.83	2.22	1.13	-----	16.53
	Brands claiming			9.00	-----	-----	1.65	2.00	2.00	-----	17.03
2449	Ober, G., & Sons Co., Baltimore, Md.	Ober's Special Ammoniated Dissolved Bone	Albemarle	8.83	1.23	.60	1.83	2.22	2.10	-----	17.03
2163	Pocahontas Guano Co., Lynchburg, Va.	Yellow Tobacco Special	Roxboro	8.48	1.11	.76	1.87	2.27	2.75	5.30	18.24
2808	Rasin-Monumental Co., Baltimore, Md.	Dixie Guano	Lawndale	9.24	1.03	.74	1.77	2.15	1.67	-----	17.42
	Brands claiming			9.00	-----	-----	1.65	2.00	3.00	-----	18.03
2147	Craven Chemical Co., New Bern, N. C.	Prolix 9-2-3 Special Guano	Winterville	8.80	.61	1.74	2.35	2.86	4.04	-----	21.83
2928	Interstate Chemical Corporation, Charlotte, N. C.	Special High Grade Guano	Lilesville	8.91	.15	1.66	1.81	2.20	2.74	-----	18.36
2882	Marietta Fertilizer Co., Atlanta, Ga.	Marietta Boll Producer	Albemarle	8.70	.75	.74	1.49	1.81	2.55	-----	16.64
2678	Navassa Guano Co., Wilmington, N. C.	Oseola Guano	Shelby	10.25	1.43	.86	2.29	2.78	1.96	-----	20.80
2011	Patapsco Guano Co., Baltimore, Md.	Patapsco Cotton Grower Special	Earl	8.59	1.39	.48	1.87	2.27	3.35	-----	18.93
2941	Planters Fertilizer and Phosphate Co., Charleston, S. C.	Planters' Blood and Fish Guano	Croft	9.19	.77	.98	1.75	2.13	2.26	-----	17.88
2907	Powhatan Chemical Co., Richmond, Va.	N. C. Favorite	Lawndale	9.45	.85	.68	1.53	1.86	2.96	-----	17.89
2676	Richmond Guano Co., Richmond, Va.	Bumper Crop Ammoniated Guano	Moreshboro	8.97	.99	.60	1.59	1.93	3.60	-----	18.35
1810	-----do-----	C. & B.'s Best Fertilizer	Monroe	9.46	2.23	.66	2.89	3.51	3.16	-----	23.81
2771	Royster, F. S., Guano Co., Norfolk, Va.	Royster's Ammoniated Guano	Gastonia	8.65	1.17	.60	1.77	2.15	3.23	-----	18.45
2556	-----do-----	Viking Ammoniated Guano	Gastonia	9.64	1.27	.58	1.85	2.25	2.98	-----	19.43

ANALYSES OF COMMERCIAL FERTILIZERS—SPRING SEASON, 1913.

Laboratory Number.	Name and Address of Manufacturer.	Name of Brand.	Where Sampled.	Percentage Composition or Parts per 100.							Relative Value per Ton at Factory.	
				Available Phosphoric Acid.	Water-soluble Nitrogen.	Organic Nitrogen.	Total Nitrogen.	Equivalent to Ammonia.	Total Potash.	Potash from Muriate.		Potash from Sulphate.	Chlorine.
MIXED FERTILIZERS.												
Brands claiming				9.00	-----	-----	1.65	2.00	3.00	-----	-----	\$18.03
2352	Southern Cotton Oil Co., Davidson, N. C.	Razem.	Cornelius	10.30	.19	1.30	1.49	1.81	3.20	-----	-----	18.73
3024	Tuscarora Fertilizer Co., Atlanta, Ga.	Tuscarora Chief.	Mount Airy	9.04	.29	1.06	1.35	1.64	2.75	-----	-----	16.56
2101	Union Guano Co., Winston, N. C.	Farmers Blood and Bone Guano.	Clinton.	9.54	1.43	.42	1.85	2.15	2.88	-----	-----	19.24
1622	do.	Union Complete Cotton Mixture.	Clinton.	9.58	.30	1.51	1.81	2.20	2.79	-----	-----	19.01
Brands claiming				9.00	-----	-----	1.65	2.00	4.00	-----	-----	19.03
2719	Imperial Co., Norfolk, Va.	Imperial Crop Grower.	Winston	9.82	.69	.92	1.61	1.96	3.70	-----	-----	19.30
2350	Piedmont-Mount Airy Guano Co., Baltimore, Md.	Piedmont Essential Tobacco Compound.	Stoneville.	9.15	.75	1.04	1.79	2.18	2.14	2.14	-----	5.60
Brands claiming				9.00	-----	-----	1.85	2.25	1.00	-----	-----	16.87
2351	Bradley Fertilizer Co., Boston, Mass.	Standard Sea Fowl Guano.	Charlotte.	9.53	1.27	.70	1.97	2.40	1.26	-----	-----	19.11
2396	Va.-Car. Chemical Co., Richmond, Va.	Star Brand Guano.	Boonford.	10.90	.55	.74	1.29	1.57	1.14	-----	-----	16.37
Brands claiming				9.00	-----	-----	1.85	2.25	4.00	-----	-----	19.87
2767	American Agricultural Chemical Co., New York, N. Y.	Lazaretto Retriever Animal Bone Fertilizer.	Shelby	9.05	1.19	.62	1.81	2.20	3.99	-----	-----	19.74
2770	do.	Zell's Victoria Animal Bone Compound.	Cherryville.	9.07	1.47	.52	1.99	2.42	3.85	-----	-----	20.37
2507	Carolina Warehouse Co., Salisbury, N. C.	Farmers' Union Guano.	Greensboro.	9.98	1.85	.22	2.07	2.52	4.05	-----	-----	21.71
2768	Catawba Fertilizer Co., Lancaster, S. C.	Catawba Farmers' Union.	Gastonia.	8.95	.97	1.00	1.97	2.40	4.12	-----	-----	20.45

2535	Georgia Chemical Works, Augusta, Ga.....	Bumper Tobacco Guano.....	Tobaccoville.....	8.25	1.53	.86	2.39	2.91	4.37	4.37	3.75	21.83
1866	Pocahontas Guano Co., Lynchburg, Va.....	High Grade Tobacco Compound, Molawak King Brand.	Dunn.....	8.48	1.73	.30	2.03	2.47	3.99	3.99	8.80	20.15
1984	Pocomoko Guano Co., Norfolk, Va.....	Monticello Animal Bone Fertilizer.....	Suow Hill.....	9.09	.61	1.42	2.03	2.47	4.68			21.39
2492	do.....	do.....	Broadway.....	8.81	1.53	.58	2.11	2.57	3.94			20.73
1896	Robertson Fertilizer Co., Norfolk, Va.....	Beaver Brand Soluble Tobacco Guano.....	Elm City.....	9.33	.97	.88	1.85	2.25	3.87	3.87	7.05	20.04
2106	Va.-Car. Chemical Co., Richmond, Va.....	V.-C. C. Co.'s Cuban Special Mixture.....	Candor.....	9.44	1.93	.48	2.41	2.93	6.84			25.46
Brand claiming.....												
2263	Va.-Car. Chemical Co., Richmond, Va.....	Davie & Whittle's Owl Brand Special Tobacco Guano.	Woodsdale.....	10.00	1.61	.30	1.91	2.32	2.17	2.17	2.00	19.19
Brands claiming.....												
2996	Martin, D. B., Co., Norfolk, Va.....	Johnson's High Grade.....	Dunn.....	8.84	1.35	.68	2.03	2.47	4.89			21.37
1764	Patapsco Guano Co., Baltimore, Md.....	Patapsco Cotton and Corn Special.....	Benson.....	9.37	1.81	.54	2.35	2.86	5.14			23.44
Brands claiming.....												
2284	Acme Mfg. Co., Wilmington, N. C.....	Acme Cotton Grower.....	LaGrange.....	8.92	.95	1.28	2.23	2.71	2.55			19.94
1993	American Fertilizer Co., Norfolk, Va.....	Capital King Cotton Grower.....	Macclesfield.....	9.00	.77	1.62	2.39	2.91	2.02			20.16
1673	Atlantic Chemical Co., Norfolk, Va.....	Atlantic Meal Compound.....	Edenton.....	9.01	.86	1.35	2.21	2.69	2.02			19.41
2782	Bryant Fertilizer Co., Alexandria, Va.....	Bryant's Special Cotton-seed Meal Fertilizer.	Roseboro.....	9.32	.87	1.42	2.29	2.78	2.68			20.69
1908	Caraleigh Phosphate and Fertilizer Works, Raleigh, N. C.	Pacific Tobacco and Cotton Grower.....	Whickard.....	9.07	1.09	1.28	2.37	2.88	3.08	3.08	8.85	21.00
2905	Farmville Oil and Fertilizer Co., Farm- ville, N. C.	Scientific Cotton Grower C. S. M.....	Pinetops.....	9.37	.95	1.58	2.53	3.08	2.64			21.70
1911	do.....	do.....	Farmville.....	9.56	.77	1.66	2.43	2.96	2.83			21.64
1983	Imperial Co., Norfolk, Va.....	Martin County Special Crop Grower.....	Pinetops.....	8.83	1.81	.66	2.47	3.00	2.47			20.79
2278	MacMurphy Co., Charleston, S. C.....	Wilcox, Gibbs & Co.'s Guano.....	Wadesboro.....	8.98	1.01	1.58	2.59	3.15	2.55			21.51
1690	Pamlico Chemical Co., Washington, N. C.....	Prosperity Cotton Grower.....	Washington.....	9.77	1.08	1.37	2.45	2.98	2.40			21.48
2785	do.....	do.....	LaGrange.....	9.43	.89	1.52	2.41	2.93	2.78			21.39
2800	Powhatan Chemical Co., Richmond, Va.....	Economic Cotton Grower.....	Wilson.....	9.44	1.53	.94	2.47	3.00	2.44			21.31
2322	Richmond Guano Co., Richmond, Va.....	Carolina Cotton Grower.....	Scotland Neck.....	9.69	1.19	.96	2.15	2.61	2.40			20.15
1717	Royster, F. S., Guano Co., Norfolk, Va.....	Royster's Meal Mixture.....	Edenton.....	9.90	.81	1.34	2.15	2.61	2.28			20.22

Brands claiming		9.00	2.47	3.00	3.00	21.47		
2657	Armour Fertilizer Works, Wilmington, N. C. Armour's African Cotton Grover Fertilizer.	8.74	1.71	.68	2.39	2.91	2.76	20.66
2958	Armour Fertilizer Works, Greensboro, N. C. Armour's Tobacco Champion.	8.74	1.13	1.36	2.49	3.03	3.14	21.22
2486	Craven Chemical Co., New Bern, N. C. Halifax Guano.	9.17	1.33	1.22	2.55	3.10	3.06	22.02
3020	Martin, D. B., Co., Norfolk, Va. Martin's Tobacco Special.	8.85	1.31	1.08	2.39	2.91	3.02	21.92
2455	Navassa Guano Co., Wilmington, N. C. Navassa Fish Guano.	9.22	1.75	.68	2.43	2.95	2.74	21.24
2961	do. Robeson County Special C. S. M.	9.07	.95	1.68	2.63	3.20	3.40	22.61
5335	N. C. Cotton Oil Co., Henderson, N. C. Pride of Vance Tobacco Fertilizer.	9.72			2.39	2.91	3.12	21.92
2450	Ober, G., & Sons Co., Baltimore, Md. Ober's Special High Grade Fertilizer.	8.14	1.79	.70	2.49	3.03	3.21	20.99
1619	Putapasco Guano Co., Baltimore, Md. Putapasco Tobacco Fertilizer.	9.19	1.98	.63	2.61	3.17	3.01	22.24
1799	do. do. do.	9.04	1.83	.64	2.47	3.00	2.91	21.42
2162	Pocahontas Guano Co., Lynchburg, Va. Special Tobacco Fertilizer.	8.70	1.39	1.22	2.61	3.17	3.06	21.85
2378	Royster, F. S., Guano Co., Norfolk, Va. Special Tobacco Grover.	9.25	1.85	.64	2.49	3.03	3.02	21.80
2071	Southern Cotton Oil Co., Charlotte, N. C. Uncle Sam Fertilizer.	10.21	1.09	1.36	2.45	2.98	2.86	22.34
2310	do. do. do.	9.07	1.21	1.24	2.45	2.98	2.89	21.34
2616	Swift Fertilizer Works, Wilrington, N. C. Swift's Special Cotton Grover, High Grade.	8.02	.43	1.78	2.21	2.69	2.33	18.83
2662	Vance Guano Co., Henderson, N. C. Farmers' Union Vance.	9.46	1.67	.64	2.31	2.81	3.00	20.95
2604	Va.-Car. Chemical Co., Richmond, Va. V.-C. C. Co.'s Jeffreys' High Grade Guano.	10.00	1.59	.64	2.23	2.71	2.14	20.51
5376	do. do. do.	9.62	2.13	.66	2.79	3.39	3.60	24.04
2955	do. do. do. Westfield's Special High Grade Tobacco Grover.	9.46	1.67	.86	2.53	3.08	3.06	22.20
Brand claiming		9.00			2.47	3.00	4.00	22.47
2605	Va.-Car. Chemical Co., Richmond, Va. V.-C. C. Co.'s Great Texas Cotton Grover.	10.25	.89	.70	1.59	1.93	4.03	19.93
Brand claiming		9.00			2.47	3.00	4.50	22.97
2337	Southern Cotton Oil Co., Gibson, N. C. Adams' Favorite Fertilizer.	10.29	.91	1.84	2.75	3.34	4.03	24.84
Brands claiming		9.00			2.47	3.00	6.00	24.47
2079	Powhatan Chemical Co., Richmond, Va. Guilford Special Tobacco Fertilizer.	8.77	1.75	.82	2.57	3.12	7.08	25.77
2250	Reidsville Fertilizer Co., Reidsville, N. C. Lion Brand Fertilizer.	8.80	2.29	.16	2.45	2.98	5.79	24.00

ANALYSES OF COMMERCIAL FERTILIZERS—SPRING SEASON, 1913.

Laboratory Number.	Name and Address of Manufacturer.	Name of Brand.	Where Sampled.	Percentage Composition or Parts per 100.								Relative Value per Ton at Factory.	
				Available Phosphoric Acid.	Water-soluble Nitrogen.	Organic Nitrogen.	Total Nitrogen.	Equivalent to Ammonia.	Total Potash.	Potash from Muriate.	Potash from Sulphate.		Chlorine.
MIXED FERTILIZERS.													
Brands claiming													
2510	Farmville Oil and Fertilizer Co., Farmville, N. C.	Greene County Special for Tobacco.	Ayden.	9.00	.81	1.80	2.61	3.17	5.53	5.53	5.60	23.73	
Brands claiming													
2974	American Fertilizer Co., Norfolk, Va.	Special Formula Guano for Yellow Leaf Tobacco.	Rural Hall.	10.30	2.67	.30	2.97	3.61	6.43	6.43	5.10	23.17	
2530	do.	do.	Ayden.	9.09	2.11	.64	2.75	3.34	5.18	2.73	2.45	24.91	
2858	do.	Pitt County Special Fertilizer.	Greenville.	8.79	2.39	.36	2.75	3.34	6.14			25.60	
Brands claiming													
2880	Coe-Mortimer Co., Charleston, S. C.	Coe-Mortimer Co.'s Corn Club.	Star.	9.69	1.59	.40	1.99	2.42	2.06			19.14	
1608	Patapsco Guano Co., Baltimore, Md.	Patapsco Guano.	Nashville.	9.23	1.81	.52	2.33	2.83	2.11			20.25	
5804	do.	do.	Elm City.	8.98	1.47	.32	1.79	2.18	2.21			17.84	
Brands claiming													
2182	Canton Fertilizer Co., Canton, Ga.	Quickstep Wheat and Grain Grower.	Murphy.	10.00			.82	1.00	3.00			15.44	
2338	Royster, F. S., Guano Co., Norfolk, Va.	Haywood County Special.	Hazelwood.	11.10	.33	.66	.99	1.20	2.06			16.21	
3031	Swift Fertilizer Works, Wilmington, N. C.	Swift's Planters' Special.	Gibsonville.	10.98	.53	.28	.81	.98	3.01			16.29	
Brands claiming													
2611	Vance Guano Co., Henderson, N. C.	Vance Corn and Grain Grower.	Linden.	9.95	2.20	.46	2.66	3.23	2.95			23.08	
2262	do.	do.	Helena.	10.00			.82	1.00	3.50			15.94	
				10.27		.87	.87	1.06	3.12			16.02	
				9.94	.19	.84	1.03	1.25	3.63			16.90	

Brand claiming		10.00	.46	.82	1.00	4.00	16.44
2528	Farmville Oil and Fertilizer Co., Farmville, N. C.	8.70	.39	.85	1.03	5.04	16.44
Brands claiming		10.00		.82	1.00	5.00	17.44
2839	Farmers Cotton Oil Co., Wilson, N. C.	9.80	.59	1.29	1.57	4.29	18.53
2294	do	9.75	.37	.99	1.20	5.31	18.24
1981	Farmville Oil and Fertilizer Co., Farmville, N. C.	9.75	.37	.93	1.13	5.47	18.15
Brands claiming		10.00		1.03	1.25	6.00	19.33
5874	Union Guano Co., Winston, N. C.	9.19	.71	.79	.96	6.05	17.64
2825	do	9.57	1.71	1.95	2.37	5.82	22.64
Brands claiming		10.00		1.65	2.00	2.00	17.93
2451	Baugh & Sons Co., Norfolk, Va.	10.91	.81	.72	1.53	1.86	18.24
2183	Canton Fertilizer Co., Canton, Ga.	10.25	.75	.84	1.59	1.93	17.64
Brands claiming		10.00		1.65	2.00	4.00	19.93
2390	Asheville Packing Co., Asheville, N. C.	9.31	.33	.80	1.13	4.91	18.03
2339	Va.-Car. Chemical Co., Richmond, Va.	10.84	1.07	.52	1.59	1.93	19.71
Brand claiming		10.00			2.06	2.50	22.15
1760	Clayton Oil Mill, Clayton, N. C.	10.97	.27	.202	2.29	2.78	23.88
Brands claiming		10.00			2.47	3.00	22.37
5858	Carolina Warehouse Co., Salisbury, N. C.	10.09	2.21	.18	2.39	2.91	22.37
2574	Coe-Mortimer Co., Charleston, S. C.	11.15	1.51	.48	1.99	2.42	20.88
2674	Swift Fertilizer Works, Wilmington, N. C.	9.50	1.15	1.20	2.35	2.86	21.55
Brand claiming		10.00			2.47	3.00	25.37
3002	Eliwan Fertilizer Co., Charleston, S. C.	10.70	.81	1.34	2.15	2.61	23.74
Brands claiming		10.00			3.29	4.00	25.82
2735	Carolina Warehouse Co., Salisbury, N. C.	11.57	2.11	.54	2.65	3.22	24.81
5344	Swift Fertilizer Works, Wilmington, N. C.	8.79			3.53	4.29	26.04

ANALYSES OF COMMERCIAL FERTILIZERS—SPRING SEASON, 1913.

Laboratory Number.	Name and Address of Manufacturer.	Name of Brand.	Where Sampled.	Percentage Composition or Parts per 100.										Relative Value per Ton at Factory.
				Available Phosphoric Acid	Water-soluble Nitrogen.	Organic Nitrogen.	Total Nitrogen.	Equivalent to Ammonia.	Total Potash.	Potash from Muriate.	Potash from Sulphate.	Chlorine.		
MIXED FERTILIZERS.														
Brands claiming				10.00			3.29	4.00	4.00					\$26.82
2553	American Agricultural Chemical Co., New York, N. Y.	Zell's Big Giant.	Mooreville.	8.63	3.21	.40	3.61	4.39	4.84					27.77
2733	Armour Fertilizer Works, Greensboro, N. C.	Armour's No. 1044 Fertilizer.	Thomasville.	9.85	1.67	1.68	3.35	4.07	4.42					27.35
2923	Coe-Mortimer Co., Charleston, S. C.	Coe-Mortimer Co.'s Level Best High Grade.	Laurinburg	10.08	1.49	2.40	3.89	4.73	4.26					29.67
2340	Va.-Car. Chemical Co., Richmond, Va.	V.-C. C. Co.'s Electric High Grade Special.	Waynesville	12.13	2.20	.78	3.07	3.73	4.17					27.98
2400	Union Guano Co., Winston, N. C.	Union Prolific Cotton Compound	Hickory	10.72	2.33	.70	3.03	3.68	3.98					26.35
Brand claiming				10.00			3.29	4.00	5.00					27.82
2890	McNair Phosphate Co., Laurinburg, N. C.	Humus.	John Station.	9.53	2.39	.82	3.21	3.90	5.42					27.48
Brand claiming				11.00			2.47	3.00	4.00					24.27
3004	Va.-Car. Chemical Co., Richmond, Va.	Charlotte Oil and Fert. Co.'s Oliver's Waxhaw Perfect Wheat Grower.		12.13	2.07	.60	2.67	3.25	4.27					26.40
Brand claiming				12.00			1.00	1.22	6.00					21.00
2059	Dixie Guano Co., Suffolk, Va.	Dixie Good Luck Brand	Edenton	12.12	.49	.64	1.13	1.37	7.87					22.72
Brand claiming				12.00			1.00	1.22	2.00					17.00
2675	Richmond Guano Co., Richmond, Va.	Premium Corn Special	Shelby	11.75	1.09	.20	1.29	1.57	2.42					18.41
Brand claiming				7.00			2.26	2.75	6.00					21.79
2750	Va.-Car. Chemical Co., Richmond, Va.	V.-C. C. Co.'s Plant Bed and High Grade Tobacco Fertilizer.	Winterville	6.80	1.71	.50	2.21	2.69	5.66	5.60		7.60	21.06	
Brand claiming				7.00			2.55	3.10	3.20					20.21
2102	Va.-Car. Chemical Co., Richmond, Va.	V.-C. C. Co.'s Formula 41 for Bright Wrappers and Smokers.	Clinton	8.07	2.11	.52	2.63	3.20	3.18		3.18		21.49	

	Brand claiming		7.00	2.67	3.25	4.50	22.01
2790	Farmville Oil and Fertilizer Co., Farmville, N. C.	Lewis' Special Cotton Fertilizer	8.06	.82 1.37	2.19	2.66 5.01	21.46
	Brand claiming		7.00		2.88	3.50 7.00	25.40
1820	Baugh & Sons Co., Norfolk, Va.	Baugh's Southern States Guano for Bright Tobacco.	7.56	2.03 .84	2.87 3.49	6.86 6.86	25.72
	Brand claiming		7.00		2.47	3.00 3.00	19.67
2482	Planters Cotton-seed Oil Co., Rocky Mount, N. C.	E. L. D. Special	8.55	.67 1.68	2.35 2.86	3.85 3.85	21.41
	Brand claiming		7.00		2.47	3.00 3.25	19.92
2550	Farmers Guano Co., Raleigh, N. C.	Farmers' Formula	6.11	1.33 1.00	2.33 2.83	3.35 3.35	18.63
	Brand claiming		7.00		2.47	3.00 4.00	20.67
2123	American Fertilizer Co., Norfolk, Va.	Stable Manure Substitute	8.14	1.15 1.48	2.63 3.20	3.11 3.11	21.48
	Brand claiming		7.00		2.47	3.00 10.00	26.67
2754	Martin, D. B., Co., Richmond, Va.	Martin's Gilt Edge Potato Fertilizer	6.40	1.71 1.20	2.91 3.54	10.53 10.53	28.51
	Brand claiming		7.00		3.29	4.00 4.00	24.12
1847	American Fertilizer Co., Norfolk, Va.	American Fish Scrap Guano	6.68	2.33 .98	3.31 4.02	4.57 4.57	24.43
	Brands claiming		7.00		3.29	4.00 5.00	25.12
3008	American Agricultural Chemical Co., New York, N. Y.	Blood, Bone, and Fish Compound	7.59	3.43 .94	4.37 5.31	5.68 5.68	30.86
1940	do.	do.	7.72	2.27 1.00	3.27 3.98	5.01 5.01	25.69
1978	Bowker Fertilizer Co., Boston, Mass.	Bowker's Southern Special Compound.	7.45	2.27 .94	3.21 3.90	5.23 5.23	25.42
2913	Carolina Warehouse Co., Salisbury, N. C.	Farmers' Union 4-7-5 Guano	7.10	2.95 1.14	3.09 3.76	4.99 4.99	24.36
2391	McNair Phosphate Co., Laurinburg, N. C.	Bostick's High Grade	7.54	1.85 1.38	3.23 3.93	5.36 5.36	25.71
2930	Pate, Z. V., Laurel Hill, N. C.	High Grade Fertilizer	7.11	1.55 1.56	3.11 3.78	5.26 5.26	24.72
2931	Swift Fertilizer Works, Wilmington, N. C.	Swift's Special High Grade Guano	8.19	2.47 .60	3.07 3.73	4.82 4.82	25.00
1623	Union Guano Co., Winston, N. C.	Union Truck Guano	7.24	2.84 .43	3.27 3.98	5.07 5.07	25.32
	Brand claiming		7.00		3.29	4.00 6.00	26.12
5395	Planters Cotton-seed Oil Co., Rocky Mount, N. C.	Braswell's Excelsior Guano	8.70	1.89 1.26	3.25 3.95	4.81 4.81	26.29
		Whitakers					

2587	Patapasco Guano Co., Baltimore, Md.	Patapasco Trucker for Early Vegetables.	Hendersonville.	7.12	3.91	.46	4.37	5.31	5.74	30.50
1693	Pocomoke Guano Co., Norfolk, Va.	Standard Truck Guano.	Elizabeth City.	7.17	1.84	1.79	3.63	4.41	6.28	27.99
1782	Robersonville Guano Co., Robersonville, N. C.	Roberson High Grade Truck Guano.	Robersonville.	7.13	1.89	1.74	3.53	4.29	5.50	27.16
1895	Royster, F. S., Guano Co., Norfolk, Va.	Royal Potato Guano.	Speed.	7.15	3.45	.76	4.21	5.12	5.19	29.31
1683	Upshur, R. L., Guano Co., Norfolk, Va.	Upshur's 5 Per Cent Guano.	Elizabeth City.	7.17	1.84	1.79	3.63	4.41	6.28	27.99
1636	Va.-Car. Chemical Co., Richmond, Va.	V.-C. Co.'s Konqueror High Grade Truck Fertilizer.	Washington.	6.17	3.06	1.17	4.23	5.14	4.96	28.28
1803	do.	do.	Bethel.	7.66	2.31	.88	3.19	3.88	5.09	25.38
	Brand claiming.			7.00			4.11	5.00	6.00	29.56
1682	Upshur, R. L., Guano Co., Norfolk, Va.	Farmers' Favorite.	Elizabeth City.	7.02	2.00	1.59	4.19	5.09	6.10	30.02
	Brands claiming.			7.00			4.11	5.00	7.00	30.56
1956	Craven Chemical Co., New Bern, N. C.	Pantego Potato Guano.	Grantsboro.	8.26	3.25	.39	3.63	4.41	8.94	28.62
2891	Navassa Guano Co., Wilmington, N. C.	Navassa Root Crop Fertilizer.	Rowland.	7.21	3.15	.42	3.57	4.34	7.19	28.67
1950	New Bern Cotton Oil and Fertilizer Mills, New Bern, N. C.	Ives' Irish Potato Guano.	New Bern.	7.47	2.39	1.32	3.71	4.51	7.67	29.98
1953	Ober, G., & Sons Co., Norfolk, Va.	Ober's 5 Per Cent Completo Vegetable Fertilizer.	Kinston.	8.22	3.19	1.26	4.85	5.90	5.37	31.43
1629	Pamlico Chemical Co., Washington, N. C.	Pamlico Special Irish Potato.	Washington.	7.62	2.60	1.57	4.17	5.07	7.28	31.65
2169	Royster, F. S., Guano Co., Norfolk, Va.	Royster's Special Potato Guano.	Rockingham.	7.25	2.61	1.48	4.09	4.97	7.22	30.92
1903	Va.-Car. Chemical Co., Richmond, Va.	V.-C. Co.'s Truck Crop Fertilizer.	Edenton.	6.37	3.47	.54	4.01	4.88	9.48	32.05
	Brands claiming.			7.00			4.11	5.00	8.00	31.56
1745	Bragaw Fertilizer Co., Washington, N. C.	Pamlico Trucker.	Washington.	7.62	2.55	1.62	4.17	5.07	7.73	32.30
2630	Carolina Warehouse Co., Salisbury, N. C.	Farmers' Union 7-5-8 Guano.	Winston.	8.10	2.69	.78	3.47	4.22	5.35	27.21
1615	Imperial Co., Norfolk, Va.	High Grade Irish Potato Guano.	Clinton.	6.92	2.81	1.38	4.19	5.09	8.03	31.89
2286	Meadows, E. H. & J. A., Co., New Bern, N. C.	Meadows' Great Potato Guano.	Goldsboro.	7.95	2.27	1.80	4.07	4.95	8.71	32.96
1821	Pamlico Chemical Co., Washington, N. C.	Cowell's Great Potato Grower.	Bayboro.	7.16	2.63	2.08	4.11	5.00	7.71	31.42
1970	Royster, F. S., Guano Co., Norfolk, Va.	Royster's Early Truck Guano.	Cross.	7.51	2.87	.94	3.81	4.63	7.95	30.71
1727	Upshur, R. L., Guano Co., Norfolk, Va.	Upshur's Special Truck Guano.	Goldsboro.	6.88	2.57	1.98	4.55	5.53	8.40	32.70
1555	Va.-Car. Chemical Co., Richmond, Va.	Old Dominion Guano Co.'s Potato Manure.	Rockingham.	6.77	4.14	.24	4.38	5.33	8.47	32.96

ANALYSES OF COMMERCIAL FERTILIZERS—SPRING SEASON, 1913.

Laboratory Number.	Name and Address of Manufacturer.	Name of Brand.	Where Sampled.	Percentage Composition or Parts per 100.							Relative Value per Ton at Factory.	
				Available Phosphoric Acid	Water-soluble Nitrogen.	Organic Nitrogen.	Total Nitrogen.	Equivalent to Ammonia.	Potash.	Potash from Muriate.		Potash from Sulphate.	Chlorine.
MIXED FERTILIZERS.												
Brand claiming												
2438	Navassa Guano Co., Wilmington, N. C.	Maulsby's Tobacco Special	Whiteville	7.00			4.11	5.00	10.00			\$33.60
Brands claiming												
2935	Powhatan Chemical Co., Richmond, Va.	Powhatan Trucker	Robersonville	8.17	.99	2.84	3.83	4.66	9.88	.66	9.22	33.32
2706	Richmond Guano Co., Richmond, Va.	Special High Grade for Truck	Edenton	7.00			4.94	6.00	5.00			32.05
Brand claiming												
2471	American Fertilizer Co., Norfolk, Va.	Standard 7 Per Cent Ammonia Guano.	Gatesville	7.97	4.65	.94	5.59	6.80	5.40			36.05
Brands claiming												
2797	Farmers Cotton Oil Co., Wilson, N. C.	Rodgers' Truck Grower	Wilson	7.00			5.76	7.00	7.00			37.49
1722	Farmers Guano Co., Raleigh, N. C.	Farmers' 7 Per Cent Trucker	Goldsboro	8.74	3.43	1.30	4.73	5.75	5.90			33.63
1798	Josey, N. B., Guano Co., Tarboro, N. C.	Josey's Potato Guano.	Tarboro	7.31	4.69	1.23	5.97	7.26	5.14			36.78
1856	Meadows, E. H. & J. A. Co., New Bern, N. C.	Meadows' Great Cabbage Guano.	New Bern	7.02	2.95	1.98	4.93	6.60	9.34			36.36
1822	Pamlico Chemical Co., Washington, N. C.	Pamlico 7-7-7 Guano.	Bayboro	7.01	3.52	1.82	5.34	6.49	7.43			36.19
2597	Va.-Car. Chemical Co., Richmond, Va.	Durham Fertilizer Co.'s Best Potato Manure.	Edenton	6.21	4.80	1.34	6.14	7.47	7.98			39.36
2452	do	Old Dominion Guano Co.'s 7-7-7 Truck Guano.	South Creek	7.17	4.79	.82	5.61	6.82	6.89			36.90
Brand claiming												
2955	Royster, F. S., Guano Co., Norfolk, Va.	Royster's 2-5-5 Special	Clemmons	7.29	4.65	.74	5.39	6.55	7.06			36.26
				6.00			1.65	2.00	5.00			16.33
				5.32	.93	1.04	1.97	2.40	4.93			17.99

	Brand claiming.....			6.00	2.47	3.00	3.00	18.73		
2516	Hubbard Fertilizer Co., Baltimore, Md.....	Hubbard's Royal Fish Ensign.....	Elizabeth City.....	7.76	1.69	.88	2.57	3.12	4.00	22.38
	Brand claiming.....			6.00	2.47	3.00	6.00			21.77
1633	Winborne Guano Co., Norfolk, Va.....	Winborne's Sweet Potato Guano.....	Edenton.....	6.14	2.20	1.35	3.55	4.32	7.38	27.92
	Brand claiming.....			6.00	2.47	3.00	7.00			22.74
3051	Ober, G., & Sons Co., Baltimore, Md.....	Ober's Red Seal Special Tobacco Guano.....	Rocky Mount.....	7.25	1.65	.64	2.29	2.78	6.51	22.65
	Brands claiming.....			6.00	3.29	4.00	4.00			23.22
2006	Imperial Co., Norfolk, Va.....	Fish and Bone.....	Pinetops.....	8.26	2.65	.76	3.41	4.14	3.99	25.75
1966	do.....	do.....	Edenton.....	6.19	1.92	1.82	3.74	4.55	3.99	25.27
2320	Richmond Guano Co., Richmond, Va.....	Edwards' Prolific Cotton Grower.....	Scotland Neck.....	6.87	1.47	.80	2.27	2.76	3.96	19.68
2113	Va.-Car. Chemical Co., Richmond, Va.....	Joseph G. Tinsley & Co.'s Strawberry Grower.....	Engelhard.....	6.45	2.31	.66	3.97	4.83	3.41	25.89
	Brand claiming.....			6.00	3.29	4.00	5.00			24.26
2548	Winborne Guano Co., Norfolk, Va.....	Winborne's Tip Top Tobacco Guano.....	Edenton.....	6.47	2.65	.63	3.33	4.05	5.83	25.64
	Brands claiming.....			6.00	3.29	4.00	7.00			26.22
1948	New Bern Cotton Oil and Fertilizer Mills, New Bern, N. C.....	Eureka Tobacco Fertilizer.....	New Bern.....	7.56	1.29	2.26	3.55	4.32	6.75	28.46
2333	Va.-Car. Chemical Co., Richmond, Va.....	6-4-7 Tobacco Mixture.....	Falling Creek.....	9.44	2.29	1.00	3.29	4.00	6.16	28.47
	Brand claiming.....			6.00	3.29	4.00	8.00			27.22
1641	Acme Mfg. Co., Wilmington, N. C.....	Acme Truck Grower.....	Maxton.....	6.08	1.66	1.45	3.11	3.78	8.39	26.92
	Brands claiming.....			6.00	4.11	5.00	5.00			27.66
2517	Hubbard Fertilizer Co., Baltimore, Md.....	Hubbard's 5 Per Cent Royal Seal.....	Elizabeth City.....	6.07	3.27	.90	4.17	5.07	6.39	29.37
5800	Imperial Co., Norfolk, Va.....	Williams' Special Potato Guano.....	Fayetteville.....	6.66	3.83	.68	4.51	5.48	3.98	28.92
2753	do.....	do.....	Elizabeth City.....	7.17	2.61	1.06	3.67	4.46	4.75	26.62
1713	Pan-American Fertilizer Co., New York, N. Y.....	Dixie Standard.....	South Mills.....	5.96	2.23	2.08	4.31	5.21	5.58	29.05
2061	Young, J. R., Fertilizer Co., Norfolk, Va.....	J. R. Young's Special Guano for Potatoes.....	Edenton.....	6.06	2.73	1.04	3.77	4.58	5.07	26.36
	Brands claiming.....			6.00	4.11	5.00	7.00			29.66
1729	American Fertilizer Co., Norfolk, Va.....	Special Potato Manure.....	Elizabeth City.....	6.05	3.05	.98	4.03	4.90	7.46	29.83
1744	Armour Fertilizer Works, Augusta, Ga.....	Armour's 5 Per Cent Trucker.....	Elizabeth City.....	5.85	2.39	1.62	4.01	4.88	7.27	29.38

ANALYSES OF COMMERCIAL FERTILIZERS—SPRING SEASON, 1913.

Laboratory Number.	Name and Address of Manufacturer.	Name of Brand.	Where Sampled.	Percentage Composition or Parts per 100.										Relative Value per Ton at Factory.	
				Available Phosphoric Acid.	Water-soluble Nitrogen.	(Organic Nitrogen.	Total Nitrogen.	Equivalent to Ammonia.	Total Potash.	Potash from Muriate.	Potash from Sulphate.	Chlorine.			
MIXED FERTILIZERS.															
Brands claiming															
1731	Baugh & Sons Co., Norfolk, Va.	Baugh's Peruvian Guano Substitute for Potatoes and All Vegetables.	Elizabeth City.	6.05	3.19	1.00	4.19	5.09	7.47						\$29.66
2725	do	do	Burgaw	6.37	3.51	.60	4.11	5.00	7.11						30.51
1681	Davis, C. E., Packing Co., Reidsville, Va.	Upshur's Special Fish for Potatoes and Vegetables.	Elizabeth City	6.68	1.62	2.39	4.01	4.88	7.19						30.10
1963	Eastern Cotton Oil Co., Hertford, N. C.	Nun-Such Potato Grower	Edenton	7.43	1.65	2.26	3.91	4.75	6.93						30.04
1735	do	Tankage and Fish Substitute Guano for Truck.	Elizabeth City	5.03	1.83	2.66	4.49	5.46	7.41						30.04
2520	Grandy, N. G., & Co., Elizabeth City, N. C.	Grandy's High Grade Potato Guano	Elizabeth City	5.55	3.21	.52	3.73	4.53	7.03						30.79
1746	Imperial Co., Norfolk, Va.	5-6-7 Potato Guano	Elizabeth City	6.10	3.07	1.03	4.15	5.05	7.15						27.69
1748	Martin, D. B., Co., Norfolk, Va.	Meadows' Animal Bone Potato Guano	Elizabeth City	6.18	3.11	.64	3.75	4.56	9.24						30.07
1678	Miller Fertilizer Co., Baltimore, Md.	High Grade Potato Guano	Elizabeth City	9.01	3.03	1.31	4.39	5.34	6.47						30.55
1712	Pan-American Fertilizer Co., New York, N. Y.	Pan-American Carolina Truckee	South Mills	6.04	2.11	1.96	4.07	4.95	7.78						33.02
1599	Patapsco Guano Co., Baltimore, Md.	Patapsco Potato Guano	Mount Olive	6.77	3.45	1.02	4.47	5.43	6.96						30.31
1714	Piedmont-Mount Airy Guano Co., Baltimore, Md.	Piedmont Early Vegetable Manure	Elizabeth City	6.27	2.07	1.88	3.95	4.80	7.18						31.82
1694	Royster, F. S., Guano Co., Norfolk, Va.	Royster's Irish Potato Guano	Elizabeth City	6.30	3.20	.97	4.17	5.07	7.01						29.41
2705	do	Yellow Bark Sweet Potato Guano	Elizabeth City	6.69	2.37	1.38	3.75	-----	6.60						30.19
2134	Southern Cotton Oil Co., Goldsboro, N. C.	Southern Cotton Oil Co.'s Truck Grower.	Faison	6.88	1.35	2.72	4.07	4.95	7.76						28.37
1572	Swift Fertilizer Works, Atlanta, Ga.	Swift's Special Potato Grower, High Grade.	Burgaw	6.30	.69	3.06	3.75	4.56	7.04						31.05
															28.46

1738	Va.-Car. Chemical Co., Richmond, Va.....	V.-C. C. Co.'s Invincible High Grade Fertilizer.	Elizabeth City	7.60	3.02	1.29	4.31	5.24	6.92	31.86
1565	do.....	V.-C. C. Co.'s Special Truck Guano.....	Kinston	6.07	2.77	1.32	4.09	4.97	6.38	29.02
1634	Winborne Guano Co., Norfolk, Va.....	Special 5-6-7	Edenton	6.11	2.38	1.27	3.65	4.44	7.61	28.44
2111	Young, J. R., Fertilizer Co., Norfolk, Va.	J. R. Young's 5-6-7 Potato Grower	Elizabeth City	6.17	2.88	.97	3.85	4.68	6.70	28.22
Brand claiming										
1779	Piedmont-Mount Airy Guano Co., Baltimore, Md.	Piedmont Special Potato Guano.....	Robersonville	5.83	3.23	1.76	4.99	6.07	5.38	31.58
Brands claiming										
2967	Baugh & Sons Co., Norfolk, Va.....	Baugh's 7 Per Cent Potato Guano.....	Robersonville	6.17	4.75	1.00	5.75	6.99	4.56	34.26
1688	do.....	do	Elizabeth City	6.11	4.66	1.09	5.75	6.99	5.18	34.83
1709	Eastern Cotton Oil Co., Hertford, N. C.....	Hertford Truck Grower	Elm City	7.24	2.73	1.98	4.71	5.73	3.09	29.39
1710	Martin, D. B., Co., Norfolk, Va.....	Martin's 7 Per Cent Guano.....	Elizabeth City	5.94	4.67	.92	5.59	6.80	5.83	34.65
1781	Robersonville Guano Co., Robersonville, N. C.	Roberson 7 Per Cent Potato Grower	Robersonville	6.18	2.43	3.62	5.75	6.99	6.10	35.81
1698	Va.-Car. Chemical Co., Richmond, Va.....	S. W. Travers & Co.'s 7 Per Cent Truck Fertilizer.	Edenton	6.12	3.93	1.34	5.27	6.41	5.27	32.91
Brands claiming										
1719	Va.-Car. Chemical Co., Richmond, Va.....	Old Dominion Guano Co.'s 7 Per Cent Truck Fertilizer.	Elizabeth City	6.02	4.89	.84	5.73	6.97	6.22	35.70
5317	do.....	do	Aurora	5.13			3.93	4.78	5.55	26.67
2596	do.....	Tinsley & Co.'s 7 Per Cent Ammoniated Guano for Truck.	Savage	6.48	4.53	.84	5.37	6.53	5.31	33.70
Brand claiming										
2150	Va.-Car. Chemical Co., Richmond, Va.....	V.-C. C. Co.'s Kitty Hawk Truck Fertilizer.	Aurora	6.05	3.07	1.20	4.27		7.57	30.95
Brands claiming										
2926	Elmore Gin and Fertilizer Co., Elmore, N. C.	Elmore X Fertilizer	Elmore	7.75	.39	2.10	2.49	3.03	3.20	20.63
2168	Pate, Z. V., Laurel Hill, N. C.	Cotton-seed Meal Fertilizer	Laurel Hill	7.88	.21	2.26	2.47	3.00	3.44	20.91
Brand claiming										
1969	Piedmont-Mount Airy Guano Co., Baltimore, Md.	Piedmont Unexcelled Guano.....	Edenton	8.15	1.91	1.40	3.31	4.02	4.12	25.36
Brand claiming										
1680	Piedmont-Mount Airy Guano Co., Baltimore, Md.	Piedmont Early Vegetable Manure.....	Elizabeth City	6.63	2.46	1.49	3.95	4.80	6.83	27.39

ANALYSES OF COMMERCIAL FERTILIZERS—SPRING SEASON, 1913.

Laboratory Number.	Name and Address of Manufacturer.	Name of Brand.	Where Sampled.	Percentage Composition or Parts per 100.										Relative Value per Ton at Factory.
				Available Phosphoric Acid.	Water-soluble Nitrogen.	Organic Nitrogen.	Total Nitrogen.	Equivalent to Ammonia.	Potash.	Potash from Muriate.	Potash from Sulphate.	Chlorine.		
MIXED FERTILIZERS.														
	Brand claiming			5.00			4.94	6.00	7.00					\$32.25
1968	Piedmont-Mount Airy Guano Co., Baltimore, Md.	Piedmont Special Potato Guano.	Edenton.	5.57	3.07	1.80	4.87	5.92	6.49					31.96
	Brand claiming			5.00			5.76	7.00	3.50					32.19
2922	Young, J. R., Fertilizer Co., Norfolk, Va.	Young's New Process Guano for Truck Crops.	Edenton.	5.73	4.41	1.00	5.41	6.58	3.88					31.76
	Brands claiming			5.00			5.76	7.00	4.00					32.69
2191	Dixie Guano Co., Suffolk, Va.	Dixie 7 Per Cent Guano.	Eure.	5.50	4.93	1.04	5.97	7.26	4.29					34.31
1901	do.	do.	Gliden.	5.49	4.85	1.04	5.89	7.16	4.20					33.87
	Brands claiming			5.00			5.76	7.00	5.00					33.69
1747	Imperial Co., Norfolk, Va.	Special 7 Per Cent for Potatoes.	Edenton.	5.49	4.05	1.78	5.83	7.09	5.09					34.52
1679	Pan-American Fertilizer Co., Norfolk, Va.	Pan-American Universal Trucker.	Elizabeth City.	6.22	4.16	1.55	5.71	6.94	5.47					35.14
1695	Upshur, R. L., Guano Co., Norfolk, Va.	7 Per Cent Special Potato Guano.	Elizabeth City.	5.11	3.90	2.15	6.05	7.36	5.28					35.29
1635	Winborne Guano Co., Norfolk, Va.	Big Crop 7 Per Cent Guano.	Edenton.	6.46	2.40	2.83	5.23	6.36	5.26					33.04
	Brand claiming.			5.00			8.23	10.00	2.00					41.07
1749	Pamlico Chemical Co., Washington, N. C.	Cowell's Great Cabbage Guano	Washington.	5.57	7.01	1.44	8.45	10.27	2.94					43.44
	Brand claiming.			5.00			8.23	10.00	3.00					42.07
2914	Dixie Guano Co., Suffolk, Va.	Dixie 10 Per Cent Top Dresser.	Greenville.	5.31	6.11	2.46	8.57	10.42	3.46					44.23
	Brand claiming.			4.00			2.47	3.00	5.00					18.97
2363	Imperial Co., Norfolk, Va.	Cubanola Tobacco Guano.	Bryan.	4.73	1.59	.88	2.47	3.00	5.36	.66	4.70	.50		19.99

	Brand claiming.....		4.00		2.75	3.34	4.50	19.65
2934	Contentnea Guano Co., Wilson, N. C.....	Special Cotton Grower.....	5.19	1.35	1.18	3.08	4.29	19.69
	Brand claiming.....		4.00			3.29	4.00	22.42
2811	Armour Fertilizer Works, Wilmington, N. C. Armour's Special Formula for Tobacco.....	Grifton.....	5.69	2.03	1.18	3.23	3.93	24.38
	Brands claiming.....		4.00			3.29	4.00	23.42
5847	Imperial Co., Norfolk, Va.....	Laughinghouse's Special Tobacco Guano.....	4.65	1.91	1.36	3.27	3.98	21.31
2364	New Bern Cotton Oil and Fertilizer Mills, New Bern, N. C.....	Wooden's Special Tobacco Guano.....	4.34	1.33	2.72	4.05	4.92	30.00
2479	Va.-Car. Chemical Co., Richmond, Va.....	V.-C. C. Co.'s Sir Walter Raleigh Tobacco Mixture.....	5.17	1.51	.96	2.47	3.00	21.76
	Brand claiming.....		4.00			4.11	5.00	24.86
5358	Va.-Car. Chemical Co., Richmond, Va.....	Buyers' Mixture for Cotton.....	4.64			5.37	6.53	33.51
	Brand claiming.....		4.00			6.18	7.50	32.06
2912	Tuscarora Fertilizer Co., Wilmington, N. C. Tuscarora Top Dresser.....	Mount Tabor.....	3.82	4.97	1.20	6.18	7.50	32.11
	Brand claiming.....		4.00			6.58	8.00	33.24
2700	United States Fertilizer Co., Baltimore, Md. Farm Bell Top Dresser.....	Greensboro.....	3.99	5.27	1.12	6.39	7.77	33.04
	Brands claiming.....		4.00			8.23	10.00	42.17
2133	Southern Cotton Oil Co., Goldsboro, N. C. Socco Top Dresser.....	Faison.....	4.77	6.21	1.76	7.97	9.69	42.59
2728	Va.-Car. Chemical Co., Richmond, Va.....	V.-C. C. Co.'s 10 Per Cent Top Dresser, Extra High Grade.....	4.82	8.13	.10	8.23	10.00	42.70
	Brand claiming.....		4.50			7.42	9.02	38.21
2911	N. C. Cotton Oil Co., Wilmington, N. C.....	Wilmington High Grade Top Dresser. Mount Tabor.....	5.07	5.41	1.38	6.79	8.26	36.79
	Brand claiming.....		3.00			4.11	5.00	29.96
5357	Va.-Car. Chemical Co., Richmond, Va.....	Buyers' Mixture for Tobacco.....	3.64			5.87	7.14	33.38
	Brand claiming.....		2.00			8.23	10.00	36.37
2369	Imperial Co., Norfolk, Va.....	Top Dresser for Cotton.....	2.53			7.75	9.42	34.83
	Brand claiming.....		12.00			1.65	2.00	17.73
5329	Martin, D. B. Co., Norfolk, Va.....	Pure Dissolved Animal Bone.....	13.35			1.99	2.42	20.37

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ANALYSES OF COMMERCIAL FERTILIZERS—SPRING SEASON, 1913.

Laboratory Number.	Name and Address of Manufacturer.	Name of Brand.	Where Sampled.	Percentage Composition or Parts per 100.								Relative Value per Ton at Factory.	
				Available Phosphoric Acid.	Water-soluble Nitrogen.	Organic Nitrogen.	Total Nitrogen.	Equivalent to Ammonia.	Potash.	Potash from Muriate.	Potash from Sulphate.		Chlorine.
MIXED FERTILIZERS.													
Brands claiming.....													
2736	Burton, C. J., Guano Co., Baltimore, Md.	Burton's Potash Mixture.....	Lexington.....	10.00					2.00				\$11.00
2883	Caraleigh Phosphate and Fertilizer Works, Raleigh, N. C.	Electric Bone and Potash Mixture.....	Winston.....	10.50					1.88				11.33
5300	Carolina Warehouse Co., Salisbury, N. C.	Farmers' Union 10-2 Bone and Potash Statesville.....	Statesville.....	10.39					2.36				11.71
2432	do.....	do.....	Statesville.....	11.10					1.75				11.73
2633	do.....	do.....	Winston-Salem.....	9.34					1.36				9.77
2552	Columbia Guano Co., Norfolk, Va.	Columbia Bone and Potash Mixture.....	Edenton.....	11.51					1.90				12.29
2362	Craven Chemical Co., New Bern, N. C.	Trent Bone and Potash.....	Maysville.....	11.85					1.32				11.98
2907	Farmers Guano Co., Raleigh, N. C.	Bone and Potash Mixture.....	Pinetops.....	12.65					1.43				12.81
2462	do.....	Century Bone and Potash Mixture.....	Gold Hill.....	11.15					2.56				12.59
2521	Grandy, N. G., & Co., Elizabeth City, N. C.	Grandy's 10-2 Bone and Potash.....	Elizabeth City.....	10.47					2.86				12.28
1925	Hampton Guano Co., Norfolk, Va.	Dauntless Potash Mixture.....	Maiden.....	10.20					2.24				11.42
1935	Imperial Co., Norfolk, Va.	Bone and Potash.....	Gibsonville.....	12.12					2.62				13.53
2708	Jennett Bros. Co., Elizabeth City, N. C.	Jennette's Soluble Bone and Potash.....	Elizabeth City.....	12.84					2.01				13.57
2573	Meadows, E. H. & J. A., Co., New Bern, N. C.	Meadows' Dissolved Bone and Potash.....	Trenton.....	8.57					2.20				9.91
2473	Miller Fertilizer Co., Baltimore, Md.	Clinch Phosphate.....	Windsor.....	10.69					1.98				11.60
1923	Navassa Guano Co., Wilmington, N. C.	Navassa Dissolved Bone with Potash.....	Lincolnton.....	10.61					2.17				11.72
				8.95					1.68				9.73

2877	Norfolk Fertilizer Co., Norfolk, Va.	Oriana Bone and Potash.	Seagrove.	10.51	2.04	11.50
2758	Piedmont-Mount Airy Guano Co., Baltimore, Md.	Piedmont Farmers' Bone and Potash.	South Mills.	10.27	1.98	11.22
2884	Pocomoke Guano Co., Norfolk, Va.	10-2 Potash Mixture.	Wilkesboro.	11.00	1.64	11.54
2793	Powhatan Chemical Co., Richmond, Va.	Bone and Potash Mixture.	Ayden.	10.09	2.18	11.26
2422	Richmond Guano Co., Richmond, Va.	Bone and Potash Mixture.	Mocksville.	10.50	2.18	11.62
2387	Robertson Fertilizer Co., Norfolk, Va.	Level Run Dissolved Bone and Potash	Bixby.	10.19	2.60	11.77
2423	Royster, F. S., Guano Co., Norfolk, Va.	Royster's Bone and Potash Mixture.	Cocleemee.	10.18	2.10	11.22
2142	Swift Fertilizer Works, Atlanta, Ga.	Swift's Field and Farm Standard Grade Phosphate and Potash.	Troy.	9.58	1.80	10.40
2828	Tuscarora Fertilizer Works, Greensboro, N. C.	Tuscarora Bone and Potash.	Mocksville.	11.27	1.59	11.73
2041	Union Guano Co., Winston, N. C.	Union Bone and Potash.	Greensboro.	10.45	2.08	11.48
2536	United States Fertilizer Co., Baltimore, Md.	Farm Bell Alkaline Mixture.	Tobaccoville.	10.32	4.16	13.45
2412	Va.-Car. Chemical Co., Richmond, Va.	Allison & Addison's B. P. Potash Mixture.	Lenoir.	9.95	1.54	10.49
2827	do.	Durham Fertilizer Co.'s Bone and Potash.	Mocksville.	12.23	1.22	12.23
2433	do.	Durham Fertilizer Co.'s Wheat Grower.	Loray.	10.91	1.31	11.13
2141	do.	Norfolk and Carolina Chemical Co.'s Norfolk Bone and Potash.	Troy.	11.53	1.94	12.32
1922	do.	Old Dominion Alkaline Bone and Potash.	Maiden.	9.90	1.63	10.54
2304	do.	Southern Chemical Co.'s Mammoth Corn Grower.	Liberty.	9.29	2.31	10.67
2642	do.	S. W. Travers & Co.'s Capital Bone and Potash Compound.	Winston-Salem.	10.02	2.50	11.52
Brands claiming.				10.00	4.00	13.00
2652	Acme Mfg. Co., Wilmington, N. C.	Acme Bone and Potash.	Liberty.	11.11	3.60	13.60
2015	American Agricultural Chemical Co., New York, N. Y.	Canton Chemical Soluble Phosphate and Potash.	Kings Mountain.	10.29	3.94	13.21
2255	do.	Lazaretto High Grade Alkaline Bone.	Mooreville.	10.23	3.98	13.19
1444	do.	Zell's High Grade Bone and Potash.	Hillsboro.	10.79	3.48	13.19
2460	do.	do.	Statesville.	10.14	3.52	12.65
2221	American Fertilizer Co., Norfolk, Va.	Double Dissolved Bone and Potash.	Wade.	11.59	3.15	13.58
2649	Armour Fertilizer Works, Greensboro, N. C.	Armour's Superphosphate and Potash Compound.	Liberty.	9.29	2.56	10.92

ANALYSES OF COMMERCIAL FERTILIZERS—SPRING SEASON, 1913.

Laboratory Number.	Name and Address of Manufacturer.	Name of Brand.	Where Sampled.	Percentage Composition or Parts per 100.										Relative Value per Ton at Factory.	
				Available Phosphate	Water-soluble Nitrogen.	Organic Nitrogen.	Total Nitrogen.	Equivalent to Ammonia.	Total Potash.	Potash from Sulphate.	Chlorine.				
MIXED FERTILIZERS.															
Brands claiming															
2594	Asheville Packing Co., Asheville, N. C.	Asheville Packing Co.'s Special Potash Mixture.	Asheville.	10.00						4.00					\$13.00
2593	do	do	Asheville.	11.37						7.81					18.04
2509	Atlantic Chemical Co., Norfolk, Va.	Atlantic 10 and 4 Bone and Potash Mixture.	Asheville.	14.49						1.38					14.42
1937	Baugh & Sons Co., Norfolk, Va.	Baugh's 10 and 4 Phosphate and Potash Mixture.	Summerfield.	10.21						3.73					12.92
3018	Berkley Chemical Co., Norfolk, Va.	Berkley Plant Food.	Burlington.	10.14						3.50					12.63
2341	Caraleigh Phosphate and Fertilizer Works, Raleigh, N. C.	Special Bone and Potash Mixture.	Shelby.	10.69						3.67					13.29
5311	Carolina Warehouse Co., Salisbury, N. C.	Farmers' Union 10 and 4 Bone and Potash.	Waynesville.	12.32						3.51					14.60
5301	do	do	China Grove.	10.33						3.97					13.27
	do	do	Statesville.	10.14						3.16					12.29
5330	do	do	Hickory.	10.37						4.09					13.42
5332	do	do	Hickory.	10.54						2.94					12.43
2305	do	do	Liberty.	9.60						4.02					12.66
2402	Chickamauga Fertilizer Works, Chattanooga, Tenn.	Chickamauga Wheat and Corn Grower Green Mountain.	Green Mountain.	10.00						4.31					13.31
2878	Coe-Mortimer Co., Charleston, S. C.	Coe-Mortimer Co.'s Bone and Potash.	Star.	10.22						3.65					12.85
2207	Columbia Guano Co., Norfolk, Va.	10 and 4 Bone and Potash Mixture.	Siler City.	10.16						3.80					12.94
2334	Contentnea Guano Co., Wilson, N. C.	Bone and Potash No. 2.	Kinston.	9.87						3.14					12.02
2551	Dixie Guano Co., Suffolk, Va.	Dixie Alkaline Bone and Potash.	Edenton.	9.81						4.31					13.21

2766	Farmers Cooperative Guano Co., Blackstone, Va.	Bone and Potash.....	Towansville.....	9.52	4.23	12.80
2463	Farmers Guano Co., Raleigh, N. C.	Special Bone and Potash.....	Gold Hill.....	11.20	4.10	14.18
2685	Georgia Chemical Works, Augusta, Ga.	High Grade XX Acid Phosphate with Potash.....	Siler City.....	7.92	4.63	11.76
1924	Hampton Guano Co., Norfolk, Va.	Hampton Crop Grower.....	Maiden.....	11.24	3.47	13.59
1842	Imperial Co., Norfolk, Va.	Catawba Wheat Grower.....	Gibsonville.....	10.60	3.85	13.39
2348	Interstate Chemical Corporation, Charlotte, N. C.	Acid Phosphate with Potash.....	Salisbury.....	9.82	4.28	13.12
2002	Lister Agricultural Chemical Works, Newark, N. J.	Lister's Phosphoric Acid and Potash.....	Rockwell.....	10.49	4.04	13.48
2745	Martin, D. B., Co., Norfolk, Va.	Martin's Soluble Potash and Bone.....	Louisburg.....	9.07	4.06	12.22
2847	Miller Fertilizer Co., Baltimore, Md.	10 and 4 Per Cent.....	High Point.....	10.01	3.31	12.32
1773	Navassa Guano Co., Wilmington, N. C.	Navassa Wheat and Grass Grower.....	Lillington.....	10.77	4.57	14.26
2074	N. C. Cotton Oil Co., Wilmington, N. C.	Wilmington Bone and Potash.....	Roseboro.....	10.34	3.93	13.24
2452	Norfolk Fertilizer Co., Norfolk, Va.	Oriana Wheat Grower.....	High Point.....	10.52	3.64	13.11
2401	Old Buck Guano Co., Richmond, Va.	Old Buck German 10-4 Mixture.....	Boonford.....	9.12	3.98	12.19
2863	Pamlico Chemical Co., Washington, N. C.	Pamlico Bone and Potash.....	Grimesland.....	10.15	4.94	14.07
2227	Piedmont-Mount Airy Guano Co., Baltimore, Md.	Levering's Potashed Bone.....	Edenton.....	10.21	3.84	13.03
2447	Poehontas Guano Co., Lynchburg, Va.	Wabash Wheat Mixture.....	High Point.....	10.08	4.04	13.11
2583	Pocomoke Guano Co., Norfolk, Va.	Pocomoke Bone and Potash Mixture.....	Germanston.....	10.48	3.84	13.27
2251	Reidsville Fertilizer Co., Reidsville, N. C.	Acid and Potash.....	Reidsville.....	7.30	3.35	9.92
2299	Richmond Guano Co., Richmond, Va.	Rex Bone and Potash Mixture.....	Dunn.....	9.99	4.01	13.00
2324	do.	Premium Peanut Grower.....	Scotland Neck.....	8.57	3.57	11.28
2228	Royster, F. S., Guano Co., Norfolk, Va.	Royster's 10-4 Bone and Potash Mixture.....	Edenton.....	10.01	4.11	13.16
2610	Southern Cotton Oil Co., Shelby, N. C.	Conqueror B. and P. Bone and Potash.....	Iron.....	10.18	4.06	13.22
2680	Swift Fertilizer Works, Wilmington, N. C.	Swift's Farmers' Home High Grade Phosphate and Potash.....	Lattimore.....	9.74	3.16	11.93
2702	Tuscarora Fertilizer Co., Greensboro, N. C.	Tuscarora Acid and Potash.....	Greensboro.....	10.72	3.20	12.85
2206	Union Guano Co., Winston, N. C.	Quaker Grain Mixture.....	Ashboro.....	9.77	3.13	11.92
2871	do.	Union 10-4 Bone and Potash.....	Coats.....	10.19	3.13	12.30

ANALYSES OF COMMERCIAL FERTILIZERS—SPRING SEASON, 1913.

Laboratory Number.	Name and Address of Manufacturer.	Name of Brand.	Where Sampled.	Percentage Composition or Parts per 100.							Relative Value per Ton at Factory.	
				Available Phosphoric Acid.	Water-soluble Nitrogen.	Organic Nitrogen.	Total Nitrogen.	Equivalent to Ammonia.	Potash from Muriate.	Potash from Sulphate.		Chlorine.
MIXED FERTILIZERS.												
Brands claiming												
2250	United States Fertilizer Co., Baltimore, Md.	Farm Bell Special Mixture.	Julian	10.00					4.00			\$13.00
2014	Va.-Car. Chemical Co., Richmond, Va.	Southern Chemical Co.'s Winner Grain Mixture.	Gastonia	10.33					4.31			13.61
1934	do	V.-C. C. Co.'s Special Potash Mixture	Burlington	8.76					4.78			12.66
2316	do	do	Mooreville	10.15					3.29			12.42
2411	do	Va. State Fertilizer Co.'s XX Potash Mixture.	Morganton	10.17					3.34			12.49
Brands claiming												
3001	American Fertilizer Co., Norfolk, Va.	American Formula for Wheat and Corn.	Linden	8.38					4.17			11.61
2701	Armour Fertilizer Works, Greensboro, N. C.	Armour's Phosphoric Acid and Potash.	Greensboro	10.00					5.00			14.00
2212	Carolina Union Fertilizer Co., Norfolk, Va.	Carolina Union 10 and 5	Edenton	10.52					4.72			14.19
2983	Carolina Warehouse Co., Salisbury, N. C.	Farmers' Union 10-5 Bone and Potash	Concord	10.18					3.82			12.98
5210	do	do	China Grove	10.57					4.80			14.31
2750	Columbia Guano Co., Norfolk, Va.	Columbia 10-5 Bone and Potash Mixture.	Kernersville	10.77					4.92			14.61
2542	Farmers Union Fertilizer Co., Norfolk, Va.	Farmers' Union 10-5	Edenton	9.96					4.74			13.70
2722	Royster, F. S., Guano Co., Norfolk, Va.	Royster's 10 and 5 Bone and Potash Mixture.	Kernersville	10.05					4.70			13.74
1832	Wilson Chemical Co., Wilson, N. C.	Bone and Potash Mixture, No. 3.	Coats	10.35					4.94			14.25
1933	Va.-Car. Chemical Co., Richmond, Va.	Lynchburg Guano Co.'s Alkaline Mixture.	Burlington	9.86					5.06			13.93
2298	do	Va. State Fertilizer Co.'s Mountain Top Bone and Potash.	Dunn	10.88					4.36			14.15
				10.05					4.42			13.46
				11.60					4.44			14.88

Brands claiming			10.00	6.00	15.00
2982	Carolina Warehouse Co., Salisbury, N. C.	Farmers' Union 10-6 Bone and Potash	Concord		14.73
2723	Va.-Car. Chemical Co., Richmond, Va.	V.-C. C. Co.'s Grain Special	Winston	5.59	14.00
Brand claiming			10.00	8.00	17.00
2343	Va.-Car. Chemical Co., Richmond, Va.	V.-C. C. Co.'s Special Mixture	Waynesville	8.94	16.86
Brands claiming			11.00	2.00	11.90
1949	New Bern Cotton Oil and Fertilizer Mills, New Bern, N. C.	Special Corn and Peanut Grower	New Bern	2.80	12.89
2802	Pocomoke Guano Co., Norfolk, Va.	Alkali Bone	Richlands	2.15	12.68
Brands claiming			11.00	5.00	14.90
2314	Caraleigh Phosphate and Fertilizer Works, Raleigh, N. C.	Horne & Sons' High Grado Bone and Potash	Garner	3.10	14.92
2802	Va.-Car. Chemical Co., Richmond, Va.	Southern Chemical Co.'s Quickstep Bone and Potash	Raleigh	4.93	15.37
Brand claiming			12.00	4.00	14.80
2187	Va.-Car. Chemical Co., Richmond, Va.	V.-C. C. Co.'s 12-4 Grain Grower	Waynesville	3.44	13.96
Brands claiming			12.00	5.00	15.80
2164	American Fertilizer Co., Norfolk, Va.	American Double Extra Bone and Potash	Roxboro	4.10	15.57
2543	Berkley Chemical Co., Norfolk, Va.	Berkley 12-5 Bone and Potash	Edenton	6.51	17.84
5309	Carolina Warehouse Co., Salisbury, N. C.	Farmers' Union Bone and Potash	China Grove	5.31	17.43
2296	Pocomoke Guano Co., Norfolk, Va.	Pocomoke 12-5 Bone and Potash	Dunn	4.41	15.21
2901	Richmond Guano Co., Richmond, Va.	High Grade Bone and Potash Mixture	Dunn	5.06	15.37
2582	Va.-Car. Chemical Co., Richmond, Va.	V.-C. C. Co.'s Special High Grade Potash Mixture	Mount Airy	4.95	13.99
Brands claiming			12.00	6.00	16.80
5308	Carolina Warehouse Co., Salisbury, N. C.	Farmers' Union Bone and Potash	China Grove	6.18	17.41
2335	Craven Chemical Co., New Bern, N. C.	Turkey Trot Bone and Potash	Comfort	6.24	17.08
3017	Union Guano Co., Winston-Salem, N. C.	Union 12-6 Bone and Potash	Conover	6.98	17.98
5339	Va.-Car. Chemical Co., Richmond, Va.	Va.-Car. Chemical Special High Grade Potash Mixture	Mount Airy	6.08	17.06
Brand claiming			20.00	4.00	22.00
2355	Va.-Car. Chemical Co., Richmond, Va.	V.-C. C. Co.'s Concentrated Bone and Potash	North Wilkesboro	2.99	16.98

ANALYSES OF COMMERCIAL FERTILIZERS—SPRING SEASON, 1913.

Laboratory Number.	Name and Address of Manufacturer.	Name of Brand.	Where Sampled.	Percentage Composition or Parts per 100.							Relative Value per Ton at Factory.	
				Available Phosphoric Acid.	Water-soluble Nitrogen.	Organic Nitrogen.	Total Nitrogen.	Equivalent to Ammonia.	Total Potash.	Potash from Muriate.		Potash from Sulphate.	Chlorine.
RAW OR UNMIXED FERTILIZER MATERIALS.												
Brands claiming				12.00								\$ 9.60
2636	Carolina Warehouse Co., Salisbury, N. C.	Farmers' Union 12 Per Cent Acid Phosphate.	Winston-Salem	12.95								10.36
2349	Richmond Guano Co., Richmond, Va.	Old Homestead Dissolved Bone	High Point	11.82								9.46
2428	Royster, F. S., Guano Co., Norfolk, Va.	Royster's XX Acid Phosphate	Clemmons	12.19								9.65
2759	do	do	Hertford	12.35								9.88
1938	Va.-Car. Chemical Co., Richmond, Va.	Old Dominion Guano Co.'s Acid Phosphate.	Burlington	13.05								10.44
2429	do	J. G. Tinsley's Stonewall Acid Phosphate.	Clemmons	12.05								9.64
Brands claiming				13.00								10.40
2465	American Fertilizer Co., Norfolk, Va.	Eagle Brand Acid Phosphate	Gold Hill	13.56								10.85
2686	Armour Fertilizer Works, Greensboro, N. C.	Armour's 13 Per Cent Acid Phosphate.	Sophia	12.99								10.39
2427	Richmond Guano Co., Richmond, Va.	Premium Dissolved Bone	Mocksville	12.50								10.00
2426	Royster, F. S., Guano Co., Norfolk, Va.	Royster's Dissolved Bone	Mocksville	14.76								11.81
2567	Tuscarora Fertilizer Co., Greensboro, N. C.	Tuscarora Acid Phosphate	Burlington	14.59								11.67
2480	Union Guano Co., Norfolk, Va.	Union Dissolved Bone	Mocksville	13.63								10.90
2688	Va.-Car. Chemical Co., Richmond, Va.	Allison & Addison's L. and L. Acid Phosphate.	Sophia	12.36								9.89
2831	do	Durham Fertilizer Co.'s Double Bone Phosphate.	Mocksville	14.16								11.33
2830	do	Old Dominion Guano Co.'s Bone Phosphate.	Mocksville	13.91								11.13

Brands claiming			14.00	11.20
1794	Acme Mfg. Co., Wilmington, N. C.	Acme High Grade Acid Phosphate.	Clarkton.	11.58
2474	American Agricultural Chemical Co., New York, N. Y.	Lazaretto Acid Phosphate.	Windsor	12.60
2544	do.	Zell's 14 Per Cent Acid Phosphate.	Edenton	11.87
2374	American Fertilizer Co., Norfolk, Va.	American High Grade Acid Phosphate.	Thelma	11.80
2568	Atlantic Chemical Co., Norfolk, Va.	Atlantic 14 Per Cent Acid Phosphate.	Gibsonville	12.54
2317	Baugh & Sons Co., Norfolk, Va.	Baugh's High Grade Acid Phosphate.	Kannapolis	12.70
2480	Bryant Fertilizer Co., Wilmington, N. C.	Bryant's S. C. Dissolved Bone.	Cameron	11.88
2326	Caraleigh Phosphate and Fertilizer Works, Raleigh, N. C.	Climax Dissolved Bone.	Winston	13.23
2306	Carolina Warehouse Co., Salisbury, N. C.	Farmers' Union 14 Per Cent Acid Phosphate.	Liberty	11.36
2553	Columbia Guano Co., Norfolk, Va.	Columbia 14 Per Cent Acid Phosphate.	Edenton	13.34
2115	Eastern Cotton Oil Co., Hertford, N. C.	14 Per Cent Acid Phosphate.	Troutville	11.59
2522	Farmers Guano Co., Raleigh, N. C.	do.	Edenton	12.43
1927	Hampton Guano Co., Norfolk, Va.	Hampton's Acid Phosphate.	Maiden	12.51
2350	Interstate Chemical Corporation, Charlotte, N. C.	Acid Phosphate.	Salisbury	7.94
2076	Martin, D. B., Co., Norfolk, Va.	Martin's Acid Phosphate.	Fayetteville	11.98
2614	Navassa Guano Co., Wilmington, N. C.	Navassa 14 Per Cent Acid Phosphate.	Red Springs	11.89
2361	Norfolk Fertilizer Co., Norfolk, Va.	Oriana 14 Per Cent Acid Phosphate.	Richlands	11.81
2331	Planters Fertilizer and Phosphate Co., Charleston, S. C.	Planters' High Grade Acid Phosphate.	Wadesboro	12.27
1926	Pocomoke Guano Co., Norfolk, Va.	Pearless Acid Phosphate.	Maiden	12.67
2339	Powhatan Chemical Co., Richmond, Va.	High Grade Acid Phosphate.	Ronda	11.55
2016	Richmond Guano Co., Richmond, Va.	do.	Shelby	11.10
2621	Robertson Fertilizer Co., Norfolk, Va.	Scepter Brand Acid Phosphate.	Norlina	11.94
2448	Royster, F. S., Guano Co., Norfolk, Va.	Royster's 14 Per Cent Acid Phosphate.	Lexington	11.38
2413	Swift Fertilizer Works, Wilmington, N. C.	Swift's Cultivator High Grade Acid Phosphate.	Lenoir	11.80
1590	Union Guano Co., Winston, N. C.	Union High Grade Acid Phosphate.	Wadesboro	11.89

ANALYSES OF COMMERCIAL FERTILIZERS—SPRING SEASON, 1913.

Laboratory Number.	Name and Address of Manufacturer.	Name of Brand.	Where Sampled.	Percentage Composition or Parts per 100.							Relative Value per Ton at Factory.	
				Available Phosphoric Acid.	Water-soluble Nitrogen.	Organic Nitrogen.	Total Nitrogen.	Equivalent to Ammonia.	Total Potash.	Potash from Muriate.		Potash from Sulphate.	Chlorine.
RAW OR UNMINED FERTILIZER MATERIALS.												
Brands claiming				14.00								\$11.20
2230	Va.-Car. Chemical Co., Richmond, Va.	Norfolk and Carolina Chemical Co.'s Norfolk Reliable Acid Phosphate.	Wadesboro	14.99								11.99
2466	do	Southern Chemical Co.'s Red Cross Acid Phosphate.	Lexington	14.09								11.27
2145	do	J. G. Tinsley & Co.'s Powhatan Acid Phosphate.	Troy	14.81								11.85
2475	do	Va.-Car. Chemical Co.'s 14 Per Cent Acid Phosphate.		15.05								12.04
2017	do	do		14.35								11.48
2760	Winborne Guano Co., Norfolk, Va.	Standard Acid Phosphate		15.19								12.15
Brands claiming				16.00								12.80
1795	Acme Mfg. Co., Wilmington, N. C.	16 Per Cent Acid Phosphate	Clarkton	16.75								13.40
5321	do	do	Fayetteville	16.74								13.39
2051	American Agricultural Chemical Co., New York, N. Y.	American High Grade Acid Phosphate.	Lumberton	17.16								13.73
2501	do	Detrick's 16 Per Cent Acid Phosphate.	Ayden	17.02								13.62
1742	do	Lazaretto 16 Per Cent Acid Phosphate.	Edenton	16.20								12.96
1635	do	Zell's 16 Per Cent Acid Phosphate.	Denton	16.35								13.08
2021	Armour Fertilizer Works, Wilmington, N.C.	Armour's 16 Per Cent Acid Phosphate.	Wilmington	16.27								13.02
2200	Arps, George L., & Co., Norfolk, Va.	Arps' 16 Per Cent Acid Phosphate.	Woodland	16.50								13.20
2272	Ashepool Fertilizer Co., Charleston, S. C.	High Grade Ashepool Dissolved Phosphate.	Monroe	18.02								14.42

2592	Asheville Packing Co., Asheville, N. C.	Asheville Packing Co.'s High Grade Acid Phosphate.	Asheville	16.24	12.99
2554	Atlantic Chemical Corporation, Norfolk, Va.	Atlantic High Grade 16 Per Cent Acid Phosphate.	Edenton	17.28	13.82
1976	Baltimore Fertilizer Co., Baltimore, Md.	Honest Acid Phosphate.	Moyock	16.05	12.84
1741	Baugh & Sons Co., Norfolk, Va.	Baugh's 16 Per Cent Acid Phosphate.	Elizabeth City	16.28	13.02
2360	Berkley Chemical Co., Norfolk, Va.	Resolute Acid Phosphate.	Richlands	16.54	13.23
3012	Bowker Fertilizer Co., New York, N. Y.	Bowker's 16 Per Cent Dissolved Bone Phosphate.	Bone Grainger	16.57	13.26
2626	Bryant Fertilizer Co., Wilmington, N. C.	Bryant's Acid Phosphate.	Marshall	15.80	12.64
3033	Burton, C. J., Guano Co., Baltimore, Md.	Acid Phosphate.	Mebane	16.57	13.26
2186	Canton Fertilizer Co., Canton, N. C.	High Grade Dissolved Bone.	Murphy	16.54	13.23
2342	Caraleigh Phosphate and Fertilizer Works, Raleigh, N. C.	16 Per Cent Acid Phosphate.	Waynesville	17.40	13.92
2062	Carolina Union Fertilizer Co., Norfolk, Va.	Carolina Union 16 Per Cent.	Edenton	16.12	12.90
5303	Carolina Warehouse Co., Salisbury, N. C.	Farmers' Union 16 Per Cent Acid Phosphate.	Statesville	16.27	13.02
1977	do.	do.	Lincolnton	16.18	12.94
5328	do.	do.	Hickory	15.65	12.52
2114	do.	do.	Elizabeth City	15.77	12.62
5859	do.	do.	Statesville	15.14	12.11
5872	do.	do.	Newton	15.34	12.27
1845	Columbia Guano Co., Norfolk, Va.	Columbia High Grade 16 Per Cent Acid Phosphate.	Greensboro	16.55	13.48
3013	do.	do.	Ayden	16.42	13.14
1868	Contentnea Guano Co., Wilson, N. C.	High Grade 16 Per Cent Acid Phosphate.	Dunn	17.37	13.90
5360	do.	do.	Maedfield	16.17	12.94
1816	Cooper Guano Co., Wilmington, N. C.	Cooper's 16 Per Cent Acid Phosphate.	Bladenboro	16.52	13.22
2879	Coe-Mortimer Co., Charleston, S. C.	Coe-Mortimer Dissolved Bone.	Star	16.41	13.13
2376	Coweta Fertilizer Co., Newnan, Ga.	Coweta 16 Per Cent Acid Phosphate.	Battleboro	16.72	13.38
1958	Craven Chemical Co., New Bern, N. C.	Panama 16 Per Cent Acid Phosphate.	Grantsboro	16.51	13.21
2273	Crow Fertilizer Co., Monroe, N. C.	Crow's High Grade 16 Per Cent Acid Phosphate.	Monroe	17.07	13.66

ANALYSES OF COMMERCIAL FERTILIZERS—SPRING SEASON, 1913.

Laboratory Number.	Name and Address of Manufacturer.	Name of Brand.	Where Sampled.	Percentage Composition or Parts per 100.								Relative Value per Ton at Factory.	
				Available Phosphoric Acid.	Water-soluble Nitrogen.	Organic Nitrogen.	Total Nitrogen.	Equivalent to Ammonia.	Total Potash.	Potash from Muriate.	Potash from Sulphate.		Chlorine.
RAW OR UNMINED FERTILIZER MATERIALS.													
	Brands claiming			16.00									\$12.80
2752	Dixie Guano Co., Suffolk, Va.	Dixie Acid Phosphate.	Greenville.	16.35									13.08
1907	Eastern Cotton Oil Co., Hertford, N. C.	16 Per Cent Acid Phosphate.	Edenton.	15.25									12.12
2658	Everett, John R., Rockingham, N. C.	do.	Rockingham.	16.94									13.55
2143	Farmers Guano Co., Norfolk, Va.	F. G. C. 16 Per Cent Acid Phosphate	Troy.	17.17									13.74
2794	Farmville Oil and Fertilizer Co., Farmville, N. C.	XX High Grade Acid Phosphate.	Ayden.	16.04									12.83
1740	Foreign Products Co., Baltimore, Md.	16 Per Cent Acid Phosphate.	Edenton.	16.67									13.34
1906	do.	do.	Edenton.	16.52									13.22
5325	do.	do.	Mulberry Hill.	17.16									13.72
5350	do.	do.	Vander.	16.96									13.57
5349	do.	do.	Fayetteville.	16.91									13.55
2488	do.	do.	Potocasi.	16.79									13.43
2687	Georgia Chemical Co., Augusta, Ga.	Dissolved Bone Phosphate.	Siler City.	14.49									11.59
1961	Grandy, N. G., & Co., Elizabeth City, N. C.	Grandy High Grade 16 Per Cent Acid Phosphate.	Elizabeth City.	16.20									12.96
1928	Hampton Guano Co., Norfolk, Va.	Hampton's Acid Phosphate.	Maiden.	15.54									12.43
1975	Imperial Co., Norfolk, Va.	High Grade Tennessee Acid Phosphate.	Elizabeth City.	16.85									13.48
1650	Interstate Chemical Corporation, Charlotte, N. C.	Acid Phosphate.	Laurinburg.	17.35									13.88

1817	do	do	Gastonia	16.79	13.43
2709	Jennette Bros. Co., Elizabeth City, N. C.	Jennette's Acid Phosphate	Elizabeth City	15.84	12.67
1806	Josey, N. B., Guano Co., Tarboro, N. C.	Josey's 16 Per Cent Acid Phosphate	Williamston	16.55	13.24
2502	Lenoir Oil and Ice Co., Kinston, N. C.	L. O. and I. Co.'s 16 Per Cent Acid Phosphate	Kinston	16.08	12.86
2440	MacMurphy, The, Co., Charleston, S. C.	Acid Phosphate	Mount Tabor	16.11	12.89
1085	Martin, D. B., Co., Norfolk, Va.	Martin's Bull Head Acid Phosphate	Elizabeth City	15.41	12.33
2884	Marietta Fertilizer Co., Greensboro, N. C.	Marietta Acid Phosphate	Albemarle	16.74	13.39
5378	Meadows, E. H. & J. A., Co., New Bern, N. C.	Meadows' Diamond Acid Phosphate	Goldsboro	17.15	13.72
1946	do	do	Kinston	16.74	13.39
2574	Mewborn, T. W., & Co., Kinston, N. C.	High Grade Acid Phosphate	New Bern	16.60	13.28
2622	Miller Fertilizer Co., Baltimore, Md.	Acid Phosphate	Wise	16.93	13.54
1774	Navassa Guano Co., Wilmington, N. C.	Navassa 16 Per Cent Acid Phosphate	Lillington	16.30	13.01
1649	do	do	Laurinburg	16.29	13.03
5322	do	do	Fayetteville	17.47	13.98
5348	do	do	Fayetteville	17.21	13.77
2729	N. C. Cotton Oil Co., Wilmington, N. C.	High Grade 16 Per Cent Acid Phosphate	Mount Olive	16.32	13.06
2003	New Bern Cotton Oil and Fertilizer Mills, New Bern, N. C.	16 Per Cent Acid Phosphate	Gritton	16.49	13.19
2195	Nitrate Agencies Co., New York, N. Y.	High Grade Acid Phosphate	Jonesboro	16.96	13.57
5319	do	do	Williamston	16.37	13.10
2496	Norfolk Fertilizer Co., Norfolk, Va.	Ortuna 16 Per Cent Acid Phosphate	Sanford	16.80	13.44
2512	Ober, G., & Sons Co., Baltimore, Md.	Ober's High Grade Acid Phosphate	Grainger	16.54	13.23
1640	Pamlico Chemical Co., Washington, N. C.	Pamlico 16 Per Cent Acid Phosphate	Washington	16.70	13.36
2864	do	do	Edward	17.01	13.61
1672	Patapasco Guano Co., Baltimore, Md.	Florida Soluble Phosphate	Fremont	17.19	13.75
3055	do	do	Wilmington	15.60	12.48
1815	Pearsall & Co., Wilmington, N. C.	Pearsall's 16 Per Cent Acid Phosphate	Bladenboro	16.20	12.96

ANALYSES OF COMMERCIAL FERTILIZERS—SPRING SEASON, 1913.

Laboratory Number.	Name and Address of Manufacturer.	Name of Brand.	Where Sampled.	Percentage Composition or Parts per 100.								Relative Value per Ton at Factory.	
				Available Phosphoric Acid.	Water-soluble Nitrogen.	Organic Nitrogen.	Total Nitrogen.	Equivalent to Ammonia.	Total Potash.	Potash from Muriate.	Potash from Sulphate.		Chlorine.
RAW OR UNMIXED FERTILIZER MATERIALS.													
	Brands claiming.....			16.00									\$12.80
2213	Piedmont-Mount Airy Guano Co., Baltimore, Md.	Piedmont 16 Per Cent Acid Phosphate.	Edenton	16.09									12.87
1973	Pocomoke Guano Co., Norfolk, Va.	Superb Acid Phosphate	Elizabeth City	16.89									13.51
2788	do.	do.	Roseboro.	16.88									13.50
2420	Powlatan Chemical Co., Richmond, Va.	Magie Dissolved Bone Phosphate	Macon	16.67									13.34
3053	Planters Cotton-seed Oil Co., Rocky Mount, N. C.	Acid Phosphate.	Whitakers	16.41									13.13
2994	Planters Fertilizer and Phosphate Co., Charleston, S. C.	Planters' 16 Per Cent Acid Phosphate	Wadesboro	16.95									13.56
2453	Pochontas Guano Co., Lynchburg, Va.	Carrington's S. C. Phosphate.	High Point	16.25									13.00
2857	Rasin-Monumental Co., Baltimore, Md.	Rasin's 16 Per Cent Acid Phosphate.	Mooresville.	14.11									11.29
1814	Richmond Guano Co., Richmond, Va.	Rex Dissolved Bone	Monroe	16.01									12.81
2116	Robertson Fertilizer Co., Norfolk, Va.	High Peak Acid Phosphate.	Fairfield	16.35									13.08
1639	Royster, F. S., Guano Co., Norfolk, Va.	Royster's High Grade 16 Per Cent Acid Phosphate.	Edenton	16.25									13.00
5554	do.	do.	Fremont	17.18									13.74
5361	do.	do.	Macclesfield	16.23									12.98
2511	Scotland Neck Guano Co., Scotland Neck, N. C.	Special Formula Guano	Grifton	15.90									12.72
2354	Southern Cotton Oil Co., Davidson, N. C.	Southern Cotton Oil Co.'s 16 Per Cent Acid Phosphate.	Cornelius	16.97									13.58
2560	Southern Cotton Oil Co., Monroe, N. C.	do.	Monroe	17.08									14.14
2775	Southern Cotton Oil Co., Shelby, N. C.	do.	Waco	17.05									13.64

2178	Southern Exchange Co., Maxton, N. C.	S. E. C. Acid Phosphate.	Rowland	16.97				13.58
1805	Swift Fertilizer Works, Atlanta, Ga.	Swift's High Grade Acid Phosphate.	Williamston	16.13				12.90
5377	do.	do.	Gold-sboro.	15.77				12.62
2615	Tuscarora Fertilizer Co., Wilmington, N. C.	Tuscarora Acid Phosphate.	Red Springs	16.45				13.16
1846	Union Guano Co., Winston, N. C.	Union 16 Per Cent Acid Phosphate.	Greensboro.	16.75				13.40
2035	United States Fertilizer Co., Baltimore, Md.	Farm Bell Acid Phosphate.	Baltimore	17.04				13.63
1684	Upshur, R. L., Guano Co., Norfolk, Va.	Acid Phosphate.	Elizabeth City	16.40				13.12
2667	Vance Guano Co., Henderson, N. C.	Best Grade Acid Phosphate.	Henderson	16.85				13.48
3007	Va.-Car. Chemical Co., Richmond, Va.	Davie & Whittle's Owl Brand High Grade Acid Phosphate.	Waxhaw	16.66				13.33
1929	do.	do.	Maiden	15.57				12.47
2018	do.	Durham Fertilizer Co.'s Best Acid Phosphate.	Kings Mountain	16.04				13.31
2001	do.	do.	Albemarle	16.32				13.06
2355	do.	Southern Chemical Co.'s Click's 16 Per Cent Acid Phosphate.	Charlotte	17.42				13.94
2166	do.	Southern Chemical Co.'s Comet 16 Per Cent Acid Phosphate.	Oxford	16.60				13.28
5388	do.	Va.-Car. Chemical Co.'s 16 Per Cent Acid Phosphate.	Raleigh	16.82				13.46
1578	do.	do.	Lumberton	15.29				12.23
1591	do.	Va. State Fertilizer Co.'s Bull Run Acid Phosphate.	Wadesboro	16.20				12.96
5827	Winborne Guano Co., Norfolk, Va.	High Grade Acid Phosphate.	Edenton	16.49				13.19
2226	Young, J. R., Fertilizer Co., Norfolk, Va.	High Grade 16 Per Cent Acid Phosphate.	Edenton	16.57				13.26
Brand claiming.				24.00				19.20
2386	Va.-Car. Chemical Co., Richmond, Va.	V.-C. C. Co.'s Concentrated Acid Phosphate.	North Wilkesboro	23.35				18.68
Brand claiming.							2.00	1.60
1646	Lee, A. S., & Sons Co., Richmond, Va.	Lee's Prepared Agricultural Lime.	Laurinburg				2.21	1.77
Brands claiming.							2.25	1.80
2055	Lee, A. S., & Sons Co., Richmond, Va.	do.	Edenton				2.90	2.32
5866	do.	do.	Whitakers				2.48	1.98

ANALYSES OF COMMERCIAL FERTILIZERS—SPRING SEASON, 1913.

Laboratory Number.	Name and Address of Manufacturer.	Name of Brand.	Where Sampled.	Percentage Composition or Parts per 100.							Relative Value per Ton at Factory.	
				Available Phosphoric Acid.	Water-soluble Nitrogen.	Organic Nitrogen.	Total Nitrogen.	Equivalent to Ammonia.	Potash from Muriate.	Potash from Sulphate.		Chlorine.
RAW OR UNMIXED FERTILIZER MATERIALS.												
Brands claiming												
1618	Acme Mfg Co., Wilmington, N. C.	German Kainit.	Maxton.							12.00		\$ 9.60
2546	American Agricultural Chemical Co., New York, N. Y.	Genuine German Kainit.	Edenton							13.08		10.46
2053	American Fertilizer Co., Norfolk, Va.	do.	Lumberton.							12.95		10.36
2026	Armour Fertilizer Works, Wilmington, N. C.	German Kainit.	Wilmington.							12.67		10.14
2171	Atlantic Fertilizer Co., Atlanta, Ga.	Atlantic German Kainit.	Rockingham.							13.36		10.69
2503	Atlantic Chemical Co., Norfolk, Va.	Genuine German Kainit.	Edenton.							12.22		9.78
2063	Baugh & Sons Co., Norfolk, Va.	do.	Edenton.							12.40		9.92
3019	Berkley Chemical Co., Norfolk, Va.	do.	Shelby.							13.98		11.18
2327	Caraleigh Phosphate and Fertilizer Works, Raleigh, N. C.	do.	Winton.							12.76		10.21
2614	Carolina Warehouse Co., Salisbury, N. C.	Farmers' Union 12 Per Cent Kainit.	Salisbury.							13.35		10.68
2119	do.	do.	Elizabeth City.							12.26		9.81
2566	Carolina Union Fertilizer Co., Norfolk, Va.	Genuine German Kainit.	Greenville.							11.80		9.44
2300	Columbia Guano Co., Norfolk, Va.	do.	Angier.							11.36		9.09
2659	Conestee Chemical Co., Wilmington, N. C.	do.	Lumberton.							12.76		10.21
1833	Contentnea Guano Co., Wilson, N. C.	do.	Coats.							12.93		10.34
1566	do.	do.	Macesfield.							13.69		10.95
										12.68		10.14

1844	Coe-Mortimer Co., Charleston, S. C.	do.	Greensboro.	13.94	11.15
2075	Cooper Guano Co., Wilmington, N. C.	do.	Parkton.	12.83	10.26
2337	Craven Chemical Co., New Bern, N. C.	do.	Comfort.	13.29	10.63
2275	Crow Fertilizer Co., Monroe, N. C.	do.	Monroe.	13.45	10.76
1638	Eastern Cotton Oil Co., Hertford, N. C.	do.	Gliden.	12.69	10.15
2563	Etiwan Fertilizer Co., Charleston, S. C.	do.	Waxhaw.	12.71	10.17
2824	Farmers Guano Co., Norfolk, Va.	do.	Edenton.	12.52	10.62
1739	Foreign Products Co., Baltimore, Md.	do.	Edenton.	13.11	10.49
5325	do.	do.	Mulberry Hill.	13.39	10.71
1905	do.	do.	Edenton.	13.14	10.51
2523	Grandy, N. G., & Co., Elizabeth City, N. C.	German Kainit.	Elizabeth City.	11.90	9.52
2194	Hampton Guano Co., Norfolk, Va.	Genuine German Kainit.	Ahoskie.	12.75	10.20
1974	Imperial Co., Norfolk, Va.	do.	Elizabeth City.	12.92	10.34
2933	Interstate Chemical Corporation, Charlotte, N. C.	do.	Lilesville.	13.15	10.52
2710	Jennette Bros. Co., Elizabeth City, N. C.	Jennette's Genuine German Kainit.	Elizabeth City.	11.72	9.38
2705	Josey, N. B., Guano Co., Tarboro, N. C.	Genuine German Kainit.	Ayden.	13.09	10.47
2917	Lenoir Oil and Ice Co., Kinston, N. C.	do.	Ayden.	12.81	10.25
1687	Martin, D. B., Co., Norfolk, Va.	Martin's Genuine German Kainit.	Edenton.	12.34	9.87
1647	McNair, John F., Laurinburg, N. C.	Genuine German Kainit.	Laurinburg.	13.31	10.65
1947	Meadows, E. H. & J. A., Co., New Bern, N. C.	Meadows' Genuine German Kainit.	Kinston.	14.38	11.50
3015	Mewborn, T. W., & Co., Kinston, N. C.	Genuine German Kainit.	Richlands.	12.67	10.14
2990	Navassa Guano Co., Wilmington, N. C.	do.	Whitakers.	12.88	10.30
2910	New Bern Cotton Oil and Fertilizer Mills, New Bern, N. C.	do.	Grifton.	14.30	11.44
2903	Nitrate Agencies Co., Norfolk, Va.	Kainit.	Edenton.	12.91	10.33
2761	Norfolk Fertilizing Co., Norfolk, Va.	Genuine German Kainit.	Washington.	12.36	9.89
2513	Ober, G., & Sons Co., Baltimore, Md.	German Kainit.	Grainger.	12.55	10.01

ANALYSES OF COMMERCIAL FERTILIZERS—SPRING SEASON, 1913.

Laboratory Number.	Name and Address of Manufacturer.	Name of Brand.	Where Sampled.	Percentage Composition or Parts per 100.							Relative Value per Ton at Factory.	
				Available Phosphoric Acid.	Water-soluble Nitrogen.	Organic Nitrogen.	Total Nitrogen.	Equivalent to Ammonia.	Potash from Muriate.	Potash from Sulphate.		Chlorine.
RAW OR UNMIXED FERTILIZER MATERIALS.												
Brands claiming												
1825	Pamlico Chemical Co., Washington, N. C.	German Kainit	Bayboro							12.00		\$ 9.60
1818	Patapasco Guano Co., Baltimore, Md.	Genuine German Kainit	Concord							12.70		10.16
1793	Pearsall & Co., Wilmington, N. C.	do	Clarkton							13.18		10.54
1904	Piedmont-Mount Airy Guano Co., Baltimore, Md.	do	Gliden							13.15		10.52
2997	Planters' Fertilizer and Phosphate Co., Charleston, S. C.	Planters' German Kainit	Wadesboro							11.33		9.06
1967	Pocomoke Guano Co., Norfolk, Va.	Genuine German Kainit	Elizabeth City							12.46		9.97
2806	Powhatan Chemical Co., Richmond, Va.	Pure German Kainit	Wilson							12.61		10.09
1813	Puritan Products Co., Baltimore, Md.	Genuine German Kainit	Rowland							12.59		10.07
2711	Richmond Guano Co., Richmond, Va.	Pure German Kainit	Edenton							13.30		10.64
2117	Robertson Fertilizer Co., Norfolk, Va.	Genuine German Kainit	Elizabeth City							14.22		11.38
1637	Royster, F. S., Guano Co., Norfolk, Va.	do	Edenton							13.35		10.68
5365	do	do	Macclesfield							13.39		10.71
5343	do	do	Kittrell							13.00		10.40
2562	Southern Cotton Oil Co., Monroe, N. C.	do	Monroe							11.87		9.50
2179	Southern Exchange Co., Maxton, N. C.	do	Rowland							13.02		10.42
2172	Swift Fertilizer Works, Atlanta, Ga.	Swift's Pure German Kainit	Rockingham							13.29		10.63
										12.87		10.30

1886	Tuscarora Fertilizer Co., Wilmington, N. C.	Genuine German Kainit.....	Red Springs.....	13.19	10.55
2036	United States Fertilizer Co., Baltimore, Md.	Farm Bell German Kainit.....	Washington.....	13.33	10.66
1587	Union Guano Co., Winston, N. C.	Genuine German Kainit.....	Kinston.....	12.69	10.15
1972	Upshur, R. L., Guano Co., Norfolk, Va.	do.....	Elizabeth City.....	13.28	10.62
1568	Va.-Car. Chemical Co., Richmond, Va.	do.....	Kinston.....	13.93	11.14
5828	Winborne Guano Co., Norfolk, Va.	Winborne's Genuine German Kainit.....	Edenton.....	13.59	10.87
2215	do.....	do.....	Edenton.....	13.46	10.77
2230	Young, J. R., Fertilizer Co., Norfolk, Va.	Genuine German Kainit.....	Edenton.....	13.32	10.66
Brands claiming					
2103	Acme Mfg. Co., Wilmington, N. C.	High Grade German Kainit.....	Clinton.....	16.00	12.80
2989	do.....	do.....	Elm City.....	16.42	13.14
2844	Conestee Chemical Co., Wilmington, N. C.	High Grade German Kainit, 16 Per Cent.	Fremont.....	16.72	13.38
5850	Contentnea Guano Co., Wilson, N. C.	Genuine German Kainit.....	Fremont.....	16.17	12.94
Brands claiming					
2805	Caraleigh Phosphate and Fertilizer Works, Raleigh, N. C.	Manure Salt.....	Wilson.....	16.75	13.40
2524	Royster, F. S., Guano Co., Norfolk, Va.	do.....	Edenton.....	20.00	16.00
Brands claiming					
2732	Acme Mfg. Co., Wilmington, N. C.	Muriate of Potash.....	Mount Olive.....	19.46	15.57
1960	Baugh & Sons Co., Norfolk, Va.	High Grade Sulphate of Potash.....	Edenton.....	21.25	17.00
2739	Carolina Warehouse Co., Salisbury, N. C.	Muriate of Potash.....	Salisbury.....	48.00	38.40
2996	Combahoe Fertilizer Co., Charleston, S. C.	do.....	Morven.....	48.23	38.58
2894	Conestee Chemical Co., Wilmington, N. C.	do.....	John Station.....	49.04	39.20
2064	Eastern Cotton Oil Co., Hertford, N. C.	do.....	Edenton.....	49.97	39.98
1756	Foreign Products Co., Wilmington, N. C.	Sulphate of Potash.....	Washington.....	49.81	39.85
1588	German Kali Works, New York, N. Y.	Muriate of Potash.....	Laurel Hill.....	49.97	39.98
2442	MacMurphy Co., Charleston, S. C.	do.....	Mount Tabor.....	52.58	42.06
				47.80	38.24
				50.05	40.04
				49.67	39.74

ANALYSES OF COMMERCIAL FERTILIZERS—SPRING SEASON, 1913.

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				Available Phosphoric Acid.	Water-soluble Nitrogen.	Organic Nitrogen.	Total Nitrogen.	Equivalent to Ammonia.	Total Potash.	Potash from Muriate.		Potash from Sulphate.
RAW OR UNMIXED FERTILIZER MATERIALS.												
Brands claiming												
1887	McNair, J. F., Laurinburg, N. C.	Muriate of Potash.	Red Springs.						48.00			\$38.40
2660	do.	do.	Clarkton.						52.16			41.73
2118	Martin, D. B., Co., Norfolk, Va.	do.	Edenton.						45.98			36.78
1755	Pamlico Chemical Co., Washington, N. C.	do.	Washington.						50.88			40.70
5315	Pearsall & Co., Wilmington, N. C.	do.	Roseboro.						49.77			39.82
2395	do.	do.	Elrod.						50.10			40.08
2357	Royster, F. S., Guano Co., Norfolk, Va.	do.	Pineville.						49.62			39.70
2689	Union Guano Co., Winston, N. C.	do.	Siler City.						50.13			40.10
1602	Va.-Car. Chemical Co., Richmond, Va.	do.	Mount Olive.						52.08			41.66
2137	do.	Sulphate of Potash.	Mount Olive.						50.11			40.09
Brand claiming.												
2937	Foreign Products Co., Baltimore, Md.	do.	Williamston.						49.66			39.73
Brands claiming.												
2602	American Agricultural Chemical Co., New York, N. Y.	Muriate of Potash.	Edenton.						48.60			38.88
1843	Coe-Mortimer Co., Charleston, S. C.	do.	Greensboro.						48.89			39.11
2052	Southern Exchange Co., Maxton, N. C.	do.	Maxton.						49.00			39.20
									51.56			41.25
									44.76			35.81
									51.45			41.16

Brands claiming.....			50.00	40.00
2695	Carleigh Phosphate and Fertilizer Works, Raleigh, N. C.	Sulphate of Potash.....	50.00	40.00
1869	Contentnea Guano Co., Wilson, N. C.	Muriate of Potash.....	48.15	38.52
3005	Farmers Cotton Oil Co., Wilson, N. C.	do.....	51.25	41.00
2231	Farmers Guano Co., Norfolk, Va.	do.....	51.45	41.16
1757	Foreign Products Co., Baltimore, Md.	do.....	52.76	42.21
5354	do.....	do.....	50.48	40.38
5314	do.....	do.....	51.42	41.14
2375	do.....	do.....	50.21	40.17
5320	German Kali Works, Baltimore, Md.	do.....	50.56	40.45
2136	N. C. Cotton Oil Co., Wilmington, N. C.	do.....	50.82	40.66
5843	Nitrate Agencies Co., Norfolk, Va.	do.....	51.21	40.99
2547	do.....	do.....	51.34	41.07
5842	do.....	do.....	51.08	40.86
2214	Piedmont-Mount Airy Guano Co., Baltimore, Md.	do.....	50.94	40.75
2514	Va.-Car. Chemical Co., Richmond, Va.	Sulphate of Potash.....	49.72	39.78
Brand claiming.....			48.92	39.14
1997	Va.-Car. Chemical Co., Richmond, Va.	Dry Fish Scrap.....	5.00 6.08	19.50
Brand claiming.....			.60 8.38	35.02
1686	Martin, D. B., Co., Norfolk, Va.	Taukage.....	5.77 7.02	22.50
Brand claiming.....			2.68 2.25	18.23
2441	Pearsall & Co., Wilmington, N. C.	Fish Scrap.....	6.37 7.74	24.84
Brands claiming.....			2.31 2.70	21.34
2377	American Agricultural Chemical Co., New York, N. Y.	Ground Fish Guano.....	8.23 10.00	32.10
5324	Foreign Products Co., Baltimore, Md.	Ground Fish.....	8.09 9.84	31.55
1899	Josey, N. B., Guano Co., Tarboro, N. C.	Fish Scrap.....	7.28 8.85	28.39
			8.90 10.82	34.71

ANALYSES OF COMMERCIAL FERTILIZERS—SPRING SEASON, 1913.

Laboratory Number.	Name and Address of Manufacturer.	Name of Brand.	Where Sampled.	Percentage Composition or Parts per 100.							Relative Value per Ton at Factory.	
				Available Phosphoric Acid.	Water-soluble Nitrogen.	Organic Nitrogen.	Total Nitrogen.	Equivalent to Ammonia.	Total Potash.	Potash from Muriate.		Potash from Sulphate.	Chlorine.
RAW OR UNMIXED FERTILIZER MATERIALS.												
Brands claiming												
5363	Josey, N. B., Guano Co., Tarboro, N. C.	Fish Scrap	Bracebridge				8.23	10.00				\$32.10
2336	Meadows, E. H. & J. A., Co., New Bern, N. C.	Fine Ground Fish Scrap	Comfort				8.08	9.84				31.51
5839	New Bern Cotton Oil and Fertilizer Mills, New Bern, N. C.	High Grade Fish Scrap	Palmyra				7.71	9.37				30.07
2009	do	do	Grafton				9.08	11.04				35.41
5840	do	do	Palmyra				8.31	10.10				32.41
5364	Pamlico Chemical Co., Washington, N. C.	Pamlico Ground Fish	Maclesfield				8.30	10.09				32.37
1754	do	do	Washington				8.30	10.09				32.37
2822	Piedmont-Mount Airy Guano Co., Baltimore, Md.	Ground Fish	Edenton				7.88	9.58				30.73
Brand claiming												
2120	Eastern Cotton Oil Co., Hertford, N. C.	Fish Scrap	Avoca				8.34	10.14				32.53
Brands claiming												
2135	Farmers Guano Co., Norfolk, Va	Kanona Tankage	Faison				8.90	10.82				34.71
2092	Planters Cotton-seed Oil Co., Rocky Mount, N. C.	Ground Fish Scrap	Whitakers				9.37	11.39				36.54
Brand claiming												
2487	Swift Fertilizer Works, Atlanta, Ga.	Fish Scrap	Battleboro				9.05	11.00				35.30
Brand claiming												
2803	Coe-Mortimer Co., Charleston, S. C.	Dried Blood	Wilson				9.27	11.27				36.15
							8.52	10.36				33.23
							9.80	11.91				38.22
							9.82	11.94				38.30
							13.16	16.00				51.32
							13.74	16.71				53.59

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Laboratory Number.	Name and Address of Manufacturer.	Name of Brand.	Where Sampled.	Percentage Composition or Parts per 100.							Relative Value per Ton at Factory.	
				Available Phosphoric Acid.	Water-soluble Nitrogen.	Organic Nitrogen.	Total Nitrogen.	Equivalent to Ammonia.	Potash.	Potash from Muriate.		Potash from Sulphate.	Chlorine.
RAW OR UNMIXED FERTILIZER MATERIALS.												
	Brands claiming						14.83	18.03				\$57.84
5867	United States Fertilizer Co., Baltimore, Md.	Nitrate of Soda.	Whitakers.				15.42	18.75				60.14
2730	Union Guano Co., Winston, N. C.	do.	Wallace.				15.78	19.19				61.54
1752	Wessel, Duval & Co., New York, N. Y.	do.	Washington.				15.86	19.28				61.85
3045	do.	do.	Wilmington.				15.78	19.19				61.54
3044	do.	do.	Wilmington.				15.66	19.04				61.07
3048	do.	do.	Wilmington.				15.58	18.94				60.76
1811	do.	do.	Greensboro.				15.46	18.80				60.29
2165	Va.-Car. Chemical Co., Richmond, Va.	do.	Mebane.				15.42	18.75				60.14
2865	do.	do.	Aurora.				13.94	16.95				54.37
	Brands claiming						15.00	18.24				58.50
2717	American Agricultural Chemical Co., New York, N. Y.	Nitrate of Soda.	Mebane.				15.58	18.94				60.76
2370	do.	do.	Edenton.				15.42	18.75				60.14
2394	Cooper Guano Co., Wilmington, N. C.	do.	Fairmont.				15.58	18.94				60.76
3035	Imperial Co., Norfolk, Va.	do.	Fayetteville.				15.54	18.89				60.61
5838	Nitrate Agencies Co., Norfolk, Va.	do.	Palmyra.				15.82	19.23				61.70
2545	do.	do.	Edenton.				15.50	18.84				60.45

5541	do	do	Palmyra	15.38	18.70	59.98
2091	PatapSCO Guano Co., Baltimore, Md.	do	Enfield	15.74	19.14	61.39
3014	Pocomoke Guano Co., Norfolk, Va.	do	Richland	15.62	18.99	60.92
3036	Southern Exchange Co., Maxton, N. C.	do	Parkton	15.74	19.14	61.39
Brand claiming						
2371	Baugh & Sons Co., Norfolk, Va.	Nitrate of Soda	Edenton	15.04	18.29	58.66
Brands claiming						
2240	Atlantic Chemical Co., Norfolk, Va.	Nitrate of Soda	Edenton	15.54	18.89	60.61
2325	Columbia Guano Co., Norfolk, Va.	do	Scotland Neck	15.22	18.50	59.36
2356	Royster, F. S., Guano Co., Norfolk, Va.	do	Pineville	15.54	18.89	60.61
2350	do	do	Salisbury	15.70	19.09	61.23
Brands claiming						
2479	Caraleigh Phosphate and Fertilizer Works, Raleigh, N. C.	Nitrate of Soda	Raeford	15.50	18.81	60.45
2372	Clayton Oil Mill, Clayton, N. C.	do	Clayton	15.63	19.00	60.96
3046	Farmers Guano Co., Raleigh, N. C.	do	Wilmington	15.42	18.75	60.14
2375	Meadows, E. H. & J. A., Co., New Bern, N. C.	do	James City	15.66	19.04	61.07
2342	Powhatan Chemical Co., Richmond, Va.	do	Fremont	15.50	18.84	60.45
2338	do	do	Rusk	15.22	18.50	59.36
2229	Upshur, R. L., Guano Co., Norfolk, Va.	do	Edenton	15.78	19.19	61.54
Brand claiming						
2478	Acme Mfg. Co., Wilmington, N. C.	Nitrate of Soda	Raeford	15.18	18.46	59.20
				15.78	19.19	61.54
				20.56	25.00	80.18
				20.46	24.88	79.79

ANALYSES OF COMMERCIAL FERTILIZERS—SPRING SEASON, 1913.

Laboratory Number.	Name and Address of Manufacturer.	Name of Brand.	Where Sampled.	Percentage Composition or Parts per 100.							Relative Value per Ton at Factory.	
				Total Phosphoric Acid.	Water-soluble Nitrogen.	Organic Nitrogen.	Total Nitrogen.	Equivalent to Ammonia.	Total Potash.	Potash from Murate.		Potash from Sulphate.	Chlorine.
RAW OR UNMIXED FERTILIZER MATERIALS.												
	Brand claiming.....			14.50			2.47	3.00				\$20.52
2348	Miller Fertilizer Co., Baltimore, Md.....	Ground Bone	High Point.....	14.10			2.67	3.25				21.08
	Brand claiming.....			19.60			3.70	4.50				29.26
2508	Va.-Car. Chemical Co., Richmond, Va.....	Pure Raw Bone Meal.....	Greensboro.....	21.53			4.07	4.95				32.16
	Brands claiming.....			21.50			3.70	4.50				30.60
2852	American Agricultural Chemical Co., New York, N. Y.....	Pure Raw Bone.....	Sylva.....	21.45			3.79	4.61				30.93
2446	Baugh & Sons Co., Norfolk, Va.....	Baugh's Raw Bone Meal.....	High Point.....	21.13			3.71	4.51				30.37
1838	Columbia Guano Co., Norfolk, Va.....	Pure Raw Bone Meal.....	Greensboro.....	22.48			3.81	4.63				31.74
	Brand claiming.....			22.00			3.70	4.50				30.94
2781	Armour Fertilizer Works, Greensboro, N. C. Raw Bone Meal.....		Denton.....	19.65			3.85	4.68				29.92
	Brand claiming.....			8.00			6.99	8.50	3.50			38.46
2018	Peruvian Guano Corporation, Charleston, S. C.....	Peruvian Guano Top Dresser.....	Lumberton.....	6.40			7.31	8.89	3.83			39.01
	Brands claiming.....			22.50			3.70	4.50				30.18
1492	Powhatan Chemical Co., Richmond, Va.....	Pure Raw Bone Meal.....	Mount Airy.....	20.93			4.25	5.17				31.22
1552	Union Guano Co., Winston, N. C.....	do.....	Winston.....	20.28			3.75	4.56				28.82
	Brand claiming.....			14.00			2.47	3.00	2.00			22.13
1491	Peruvian Guano Corporation, Charleston, S. C.....	High Grade Genuine Peruvian Guano.	Mount Airy.....	16.95			3.65	4.44	2.41			29.60

Brands claiming		14.00	2.31	2.81	2.50	22.00
2704	Peruvian Guano Corporation, Charleston, S. C.	High Grade Genuine Peruvian Guano Elizabeth City	2.63	3.20	2.87	24.46
2260	do.	Roxboro	2.43	2.95	2.81	23.73
5825	do.	Hobgood	2.37	2.88	2.90	23.56
	Brand claiming	15.00	2.26	2.75	1.80	21.79
1354	Peruvian Guano Corporation, Charleston, S. C.	High Grade Genuine Peruvian Guano North Wilkesboro	2.15	2.61	1.55	20.87
	Brands claiming	20.00	3.09	2.66	3.25	30.23
2238	Peruvian Guano Corporation, Charleston, S. C.	High Grade Genuine Peruvian Guano Edenton	3.11	3.78	3.20	30.32
5835	do.	Palmyra	2.91	3.54	3.28	29.78
	Brand claiming	22.00	3.09	3.76	3.25	31.58
2259	Peruvian Guano Corporation, Charleston, S. C.	High Grade Genuine Peruvian Guano Roxboro	2.97	3.61	3.14	29.61
	Brand claiming	28.00				19.60
5333	Central Phosphate Co., Mount Pleasant, Tenn.	Tennessee Phosphate				19.88
	Brand claiming	17.00				13.60
2721	Armour Fertilizer Works, Wilmington, N. C.	Thomas Phosphate	17.03			13.62
	Brand claiming	17.50				14.00
2584	Coe-Mortimer Co., Charleston, S. C.	Thomas Phosphate	18.38			14.70
	Brands claiming	18.00				14.40
2960	Carolina Warehouse Co., Salisbury, N. C.	Thomas Phosphate, Anchor Brand	17.15			13.72
5313	do.	Thomas Phosphate	15.80			12.64
2408	New Bern Cotton Oil and Fertilizer Works, New Bern, N. C.	do.	16.30			13.04
5837	do.	Palmyra	16.08			12.86

*Total Phosphoric Acid in Bone Meal and Peruvian Guano valued at 3½ cents per pound, and in Thomas Phosphate at 4 cents per pound.

II. ANALYSES OF COTTON-SEED MEAL.

Laboratory Number.	Name and Address of Manufacturer.	Where Sampled.	Per Cent Nitrogen Guaranteed.	Equivalent to Ammonia.	Per Cent Nitrogen Found.	Equivalent to Ammonia.
5045	Avery Oil and Fertilizer Co., Salisbury, N. C.	Albemarle	6.17	7.50	6.60	8.02
5061	do.	Sylva	6.17	7.50	5.98	7.27
5094	do.	Wilkesboro	6.17	7.50	6.66	8.10
5029	Bertie Cotton Oil Co., Aulander, N. C.	Trotville	6.17	7.50	6.44	7.83
5058	do.	Rich Square	6.17	7.50	6.24	7.59
5072	do.	Ahoskie	6.17	7.50	6.38	7.76
5073	do.	do.	6.17	7.50	6.26	7.61
5139	Buckeye Cotton Oil Co., Atlanta, Ga.	Greensboro	6.17	7.50	6.30	7.66
5005	do. Charlotte, N. C.	Laurinburg	6.17	7.50	5.72	6.95
5059	do.	Waynesville	6.17	7.50	5.76	7.00
5076	do.	Sardis	6.17	7.50	6.20	7.54
5086	do. Macon, Ga.	Weldon	6.17	7.50	5.72	6.95
5102	Carolina Union Fertilizer Co., Norfolk, Va.	Edenton	6.17	7.50	6.16	7.49
5000	Clayton Oil Mill, Clayton, N. C.	Nashville	6.17	7.50	6.28	7.64
5011	do.	Selma	6.17	7.50	6.10	7.42
5050	do.	Wendell	6.17	7.50	6.26	7.61
5138	Cleveland Oil and Fertilizer Co., Cleveland, N. C.	Glen Alpine	6.17	7.50	6.22	7.56
5026	Consumers Oil Mill, Tarboro, N. C.	Speed	6.17	7.50	6.50	7.90
5111	do.	Bailey	6.17	7.50	6.40	7.78
5027	Cotton Oil and Gin Co., Scotland Neck, N. C.	Scotland Neck	6.17	7.50	5.91	7.19
5057	do.	Woodland	6.17	7.50	6.60	8.02
5107	do.	Scotland Neck	6.17	7.50	6.00	7.29
5036	Craven Chemical Co., New Bern, N. C.	Snow Hill	6.17	7.50	6.24	7.59
5093	DeSoto Oil Co., Memphis, Tenn.	Black Mountain	6.17	7.50	6.18	7.51
5062	Dunn Oil Mill Co., Dunn, N. C.	Varina	6.17	7.50	6.60	8.02
5028	Eastern Cotton Oil Co., Hertford, N. C.	Hobbsville	6.17	7.50	6.44	7.83
5039	Elba Mfg. Co., Charlotte, N. C.	Kings Mountain	6.17	7.50	6.36	7.73
5003	do. Maxton, N. C.	Maxton	6.17	7.50	5.88	7.15
5082	do.	Edenton	6.17	7.50	5.88	7.15
5014	Farmers Cotton Oil Co., Wilson, N. C.	do.	6.17	7.50	5.80	7.05
5024	do.	Williamston	6.17	7.50	6.30	7.66
5101	do.	James City	6.17	7.50	6.12	7.44
5109	do.	Bailey	6.17	7.50	6.40	7.78
5116	do.	Wilson	6.17	7.50	6.20	7.54
5131	do.	Sharpsburg	6.17	7.50	6.16	7.49
5136	do.	Lucama	6.17	7.50	6.30	7.66

ANALYSES OF COTTON-SEED MEAL.

Laboratory Number.	Name and Address of Manufacturer.	Where Sampled.	Per Cent	Equivalent to	Per Cent	Equivalent to
			Nitrogen Guaranteed.	Ammonia.	Nitrogen Found.	Ammonia.
5133	Farmers Cotton Oil and Trading Co., Uniontown, Ala.	Jacksonville.....	6.17	7.50	6.82	8.29
4999	Farmers Oil Mill Co., Nashville, N. C.	Nashville.....	6.17	7.50	6.82	8.29
5038	Farmville Oil and Fertilizer Co., Farmville, N. C.	Farmville.....	6.17	7.50	6.48	7.88
5079	do.....	Grimesland.....	6.17	7.50	6.32	7.68
5083	do.....	do.....	6.17	7.50	6.29	7.65
5126	do.....	Farmville.....	6.17	7.50	6.58	8.00
5119	Fremont Oil Mill Co., Fremont, N. C.	Mount Olive.....	6.17	7.50	6.18	7.51
5135	do.....	Fremont.....	6.17	7.50	6.32	7.68
5095	Georgia Cotton Oil Co., Atlanta, Ga.	North Wilkesboro	6.17	7.50	6.14	7.47
5081	Havens Oil Co., Washington, N. C.	Edenton.....	6.17	7.50	6.00	7.29
5121	do.....	Williamston.....	6.17	7.50	6.36	7.73
5128	do.....	Edward.....	6.17	7.50	6.30	7.65
5048	Imperial Co., Norfolk, Va.	Pinetops.....	6.17	7.50	6.24	7.59
5104	Josey, N. B., Guano Co., Tarboro, N. C.	Grifton.....	6.17	7.50	6.08	7.39
5103	do.....	Hobgood.....	6.17	7.50	6.36	7.73
5120	do.....	Edenton.....	6.17	7.50	6.22	7.56
5123	do.....	Speed.....	6.17	7.50	6.18	7.51
5040	Kings Mountain Cotton Oil Co., Kings Mountain, N. C.	Kings Mountain..	6.17	7.50	6.76	8.22
5022	Lancaster Cotton Oil Co., Lancaster, S. C.	Gaston.....	6.17	7.50	6.00	7.29
5004	Laurinburg Oil Co., Laurinburg, N. C.	Laurinburg.....	6.17	7.50	5.74	6.98
5042	Lee County Cotton Oil Co., Sanford, N. C.	Sanford.....	6.17	7.50	6.60	8.02
5008	Lenoir Oil and Ice Co., Kinston, N. C.	Kinston.....	6.17	7.50	6.18	7.51
5069	do.....	LaGrange.....	6.17	7.50	6.28	7.64
5129	Lorene Cotton Oil Mill, Mooresville, N. C.	Mooresville.....	6.17	7.50	6.48	7.88
5100	Louisburg Oil Mill, Louisburg, N. C.	Kittrell.....	6.17	7.50	6.56	7.98
5106	do.....	Creedmoor.....	6.17	7.50	6.86	8.34
5114	do.....	Louisburg.....	6.17	7.50	6.60	8.02
5089	Marion Cotton Oil Co., Marion, S. C.	Mount Tabor.....	6.17	7.50	5.97	7.26
5084	Meadows, E. H. & J. A., Co., New Bern, N. C.	Greenville.....	6.17	7.50	6.13	7.45
5016	Morgan Oil and Fertilizer Co., Red Springs, N. C.	Red Springs.....	6.17	7.50	6.16	7.49
5054	Mount Gilead Cotton Oil Co., Mount Gilead, N. C.	Candor.....	6.17	7.50	6.30	7.66
5053	Navassa Guano Co., Wilmington, N. C.	Troy.....	6.17	7.50	6.04	7.34
5077	do.....	Jacksonville.....	6.17	7.50	6.02	7.32
5125	do.....	Wanamish.....	6.17	7.50	6.28	7.64
5001	New Bern Cotton Oil and Fertilizer Mills, New Bern, N. C.	Mount Olive.....	6.17	7.50	6.12	7.44
5002	do.....	Gliden.....	6.17	7.50	6.36	7.73

ANALYSES OF COTTON-SEED MEAL.

Laboratory Number.	Name and Address of Manufacturer.	Where Sampled.	Per Cent Nitrogen		Equivalent to Ammonia.	
			Guaranteed.	Found.	Guaranteed.	Found.
5091	New Bern Cotton Oil and Fertilizer Mills, New Bern, N. C.	New Bern.....	6.17	7.50	6.40	7.78
5088	Newton Oil and Fertilizer Co., Newton, N. C.	Newton.....	6.17	7.50	5.18	6.30
5067	N. C. Cotton Oil Co., Charlotte, N. C.	Charlotte.....	6.17	7.50	6.02	7.32
5032	do.....Henderson, N. C.	Durham.....	6.17	7.50	6.06	7.37
5033	do.....	Lillington.....	6.17	7.50	5.66	6.88
5071	do.....	Edenton.....	6.17	7.50	6.22	7.56
5096	do.....	Roanoke Rapids.....	6.17	7.50	5.58	6.78
5103	do.....	Drewry.....	6.17	7.50	6.00	7.29
5105	do.....	Kittrell.....	6.17	7.50	5.88	7.05
5113	do.....	Wake Forest.....	6.17	7.50	6.12	7.44
5143	do.....	Enfield.....	6.17	7.50	6.32	7.68
5013	do.....Raleigh, N. C.	Edenton.....	6.17	7.50	5.96	7.25
5035	do.....	Durham.....	6.17	7.50	5.84	7.10
5051	do.....	Winterville.....	6.17	7.50	6.04	7.34
5063	do.....	Angier.....	6.17	7.50	6.08	7.39
5112	do.....	Winterville.....	6.17	7.50	5.70	6.93
5115	do.....	Raleigh.....	6.17	7.50	5.88	7.15
5007	do.....Wilmington, N. C.	Burgaw.....	6.17	7.50	5.92	7.20
5012	do.....	Chadbourn.....	6.17	7.50	6.02	7.32
5065	do.....	Seotland Neck.....	6.17	7.50	6.02	7.32
5035	do.....	do.....	6.17	7.50	6.12	7.44
5010	Pine Level Oil Mill Co., Pine Level, N. C.	Benson.....	6.17	7.50	6.34	7.74
5066	do.....	Kenly.....	6.17	7.50	5.84	7.10
5130	do.....	do.....	6.17	7.50	6.24	7.59
5078	Phillips, F. T., Washington, N. C.	Washington.....	6.17	7.50	5.88	7.15
5006	Roberson Mfg. Co., Lumberton, N. C.	Lumberton.....	6.17	7.50	6.24	7.59
5132	do.....	St. Pauls.....	6.17	7.50	6.26	7.61
5020	Rowland Oil and Fertilizer Co., Rowland, N. C.	Rowland.....	6.17	7.50	6.06	7.37
5085	Royster, F. S., Guano Co., Norfolk, Va.	Greenville.....	6.17	7.50	7.43	9.03
5075	Scott Brokerage and Commission Co., Charlotte, N. C.	Gulf.....	6.17	7.50	6.20	7.54
5041	Smith, W. Newton, Baltimore, Md.	Ayden.....	6.17	7.50	6.12	7.44
5090	Southern Cotton Oil Co., Atlanta, Ga.	Mocksville.....	6.17	7.50	6.24	7.59
5046	do.....Charlotte, N. C.	Lumberton.....	6.17	7.50	5.86	7.12
5055	do.....	West End.....	6.17	7.50	5.64	6.86
5074	do.....	Gulf.....	6.17	7.50	5.60	6.81
5098	do.....	Ridgeway.....	6.17	7.50	5.72	6.95

ANALYSES OF COTTON-SEED MEAL.

Laboratory Number.	Name and Address of Manufacturer.	Where Sampled.	Per Cent Nitrogen Guaranteed.	Equivalent to Ammonia.	Per Cent Nitrogen Found.	Equivalent to Ammonia.
5127	Southern Cotton Oil Co., Charlotte, N. C.	Samarcand.	6.17	7.50	5.80	7.05
5140	do.	Greensboro.	6.17	7.50	6.18	7.51
5124	do. Columbia, S. C.	Rockingham.	6.17	7.50	6.22	7.56
5134	do.	Canton.	6.17	7.50	6.26	7.61
5021	do. Concord, N. C.	Concord.	6.17	7.50	5.90	7.17
5019	do. Conetoe, N. C.	Conetoe.	6.17	7.50	6.22	7.56
5030	do.	Stokes.	6.17	7.50	6.16	7.49
5068	do. Davidson, N. C.	Mooreville.	6.17	7.50	5.92	7.20
5017	do. Fayetteville, N. C.	Parkton.	6.17	7.50	6.10	7.42
5087	do.	Fayetteville.	6.17	7.50	6.12	7.44
5049	do. Gibson, N. C.	Gibson.	6.17	7.50	5.78	7.03
5015	do. Goldsboro, N. C.	Goldsboro.	6.17	7.50	5.94	7.22
5117	do.	do.	6.17	7.50	6.20	7.54
5118	do.	do.	6.17	7.50	6.22	7.56
5144	do. Rocky Mount, N. C.	Rocky Mount.	6.17	7.50	6.36	7.73
5009	do. Selma, N. C.	Selma.	6.17	7.50	6.34	7.71
5141	do. Shelby, N. C.	Gilkey.	6.17	7.50	5.80	7.05
5025	do. Tarboro, N. C.	Tarboro.	6.17	7.50	5.64	6.86
5037	do.	Snow Hill.	6.17	7.50	5.94	7.22
5122	do.	Tarboro.	6.17	7.50	6.30	7.66
5023	do. Wilson, N. C.	Coats.	6.17	7.50	5.94	7.22
5047	do.	Enfield.	6.17	7.50	6.34	7.71
5110	do.	Bailey.	6.17	7.50	6.26	7.61
5142	do.	Enfield.	6.17	7.50	6.14	7.47
5064	Swift & Co., Columbia, S. C.	Benson.	6.17	7.50	6.00	7.29
5099	do.	Marshville.	6.17	7.50	5.76	7.00
5018	Tar River Oil Co., Tarboro, N. C.	Washington.	6.17	7.50	6.42	7.81
5092	Union Brokerage and Commission Co., Vicksburg, Miss.	Black Mountain.	6.17	7.50	6.10	7.42
5031	Va.-Car. Chemical Co., Richmond, Va.	Grantsboro.	6.17	7.50	6.10	7.42
5034	do.	Durham.	6.17	7.50	6.12	7.44
5044	do.	Edenton.	6.17	7.50	6.08	7.39
5070	do.	Smithfield.	6.17	7.50	6.12	7.44
5056	Whitakers Oil Mill Co., Whitakers, N. C.	Whitakers.	6.17	7.50	6.52	7.93
5137	Woodbury Oil Mills, Woodbury, Ga.	Norwood.	6.17	7.50	5.94	7.22
5060	Woodruff Oil and Fertilizer Co., Woodruff, S. C.	Waynesville.	6.17	7.50	5.86	7.05
5052	Zebulon Cotton Oil Co., Zebulon, N. C.	Zebulon.	6.17	7.50	6.72	8.17

III. BRANDS REGISTERED—SEASON 1912-1913.

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
<i>The Atlantic Chemical Corporation, Norfolk, Va.—</i>			
Pure Raw Bone Meal.....Total	21.50	3.71	....
Acco Thomas Phosphate Total	18.00	....	....
Atlantic High Grade 16 Per Cent Acid Phos- phate	16.00	....	....
Atlantic 14 Per Cent Acid Phosphate.....	14.00	....	....
Atlantic Dissolved Bone	13.00	....	....
Atlantic Corn Special	12.00	1.02	2.00
Atlantic Acid Phosphate	12.00	....	....
Atlantic 11 and 5 Bone and Potash Mixture..	11.00	....	5.00
Atlantic 10 and 5 Bone and Potash Mixture..	10.00	....	5.00
Atlantic 10 and 4 Bone and Potash Mixture..	10.00	....	4.00
Atlantic Bone and Potash for Grain.....	10.00	....	3.00
Atlantic Bone and Potash Mixture.....	10.00	....	2.00
Acco Tobacco Guano	9.00	2.47	3.00
Atlantic Meal Compound	9.00	2.27	2.00
Atlantic Cotton Grower	9.00	2.06	1.00
Corona Cotton Compound	9.00	1.65	3.00
Atlantic Special Guano	9.00	1.65	1.00
Atlantic Grain Guano	9.00	.82	3.00
Atlantic Fish Guano	9.00	.82	3.00
Atlantic 4-8-5 Special Tobacco Grower.....	8.00	3.30	5.00
Atlantic Special Truck Guano	8.00	3.30	4.00
Oriental High Grade Guano.....	8.00	3.30	4.00
Paloma Tobacco Guano	8.00	3.30	4.00
Pitt County Light Tobacco Special.....	8.00	2.47	5.00
Boone's Special	8.00	2.47	4.00
Atlantic High Grade Tobacco Guano.....	8.00	2.47	3.00
Atlantic High Grade Cotton Guano.....	8.00	2.47	3.00
Atlantic Tobacco Grower	8.00	2.06	3.00
Atlantic Tobacco Compound	8.00	2.06	2.00
Atlantic Special Wheat Fertilizer	8.00	1.65	2.00
Atlantic Soluble Guano	8.00	1.65	2.00
Atlantic Soluble Guano for Tobacco.....	8.00	1.65	2.00
Apex Peanut Grower	8.00	1.02	4.00
Atlantic 8 and 5 Bone and Potash Mixture...	8.00	....	5.00
Atlantic 8 and 4 Bone and Potash Mixture...	8.00	....	4.00
Atlantic 7 Per Cent Truck Guano.....	7.00	5.77	7.00
Atlantic Potato Guano	7.00	4.12	5.00
Perfection Peanut Grower	7.00	....	5.00
Atlantic Special Potato Guano	6.00	4.12	7.00
Atlantic 6-2-5 Special	6.00	1.65	5.00
Atlantic Side Dresser	4.00	8.22	4.00
Atlantic Special Top Dresser	4.00	6.18	2.50
Nitrate of Soda .....	....	15.22	....
Atlantic Top Dresser .....	....	7.42	3.00
Sulphate of Potash .....	....	....	48.00
Muriate of Potash .....	....	....	48.00
Genuine German Kainit .....	....	....	12.00

Geo. L. Arps & Co., Norfolk, Va.—

Arps' H. G. 16 Per Cent Acid Phosphate.....	16.00	....	....
14 Per Cent Acid Phosphate.....	14.00	....	....
Arps' 10 and 4 Bone and Potash Mixture....	10.00	....	4.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Arps' 10 and 2 Bone and Potash Mixture....	10.00	....	2.00
Arps' "Go-a-Head" Guano for Trucks, Cotton and Tobacco	8.00	3.30	4.00
Arps' Quick Growth for All Crops.....	8.00	2.47	3.00
Arps' Premium Guano for Cotton, Tobacco, and All Spring Crops	8.00	1.65	2.00
Arps' Big Yield Guano	8.00	1.65	2.00
Arps' Standard Truck Guano	7.00	4.12	6.00
Arps' Potato Guano	6.00	5.76	5.00
Arps' Scuppernong Guano for Trucks.....	6.00	4.12	7.00
Arps' Potato and Truck Special.....	6.00	4.12	7.00
Genuine German Kainit .....	....	....	12.00

Acme Manufacturing Co., Wilmington, N. C.—

16 Per Cent Acid Phosphate.....	16.00	....	....
Acme High Grade Acid Phosphate.....	14.00	....	....
Acme Acid Phosphate	13.00	....	....
Acme Bone and Potash.....	12.00	....	6.00
Acme Bone and Potash.....	12.00	....	5.00
Acme Bone and Potash.....	12.00	....	4.00
Acme Bone and Potash.....	12.00	....	3.00
Acme Bone and Potash.....	12.00	....	2.00
Acme Bone and Potash.....	11.00	....	6.00
Acme Bone and Potash.....	11.00	....	5.00
Acme Bone and Potash.....	11.00	....	4.00
Acme Bone and Potash.....	11.00	....	3.00
Acme Bone and Potash.....	11.00	....	2.00
Acme Melon Grower	10.00	3.30	5.00
Acme Bone and Potash.....	10.00	....	6.00
Acme Bone and Potash.....	10.00	....	5.00
Acme Bone and Potash.....	10.00	....	4.00
Acme Bone and Potash.....	10.00	....	3.00
Acme Bone and Potash.....	10.00	....	2.00
Acme Cotton Grower	9.00	2.27	2.00
Acme Special Fertilizer for Cotton.....	8.00	4.12	7.00
Acme Special Fertilizer for Tobacco.....	8.00	4.12	7.00
Acme Plumb Good Fertilizer	8.00	3.30	6.00
Acme "OK" Fertilizer	8.00	3.30	4.00
Acme "OK" Fertilizer for Tobacco	8.00	3.30	4.00
Quick Step Fertilizer	8.00	3.30	4.00
Quick Step Fertilizer for Tobacco.....	8.00	3.30	4.00
Acme Crop Grower	8.00	2.47	4.00
Currie's High Grade Fertilizer.....	8.00	2.47	4.00
Acme Crop Grower for Tobacco.....	8.00	2.47	4.00
Best's Fish Scrap Guano for Tobacco.....	8.00	2.47	3.00
Best's Fish Scrap Guano	8.00	2.47	3.00
Pee Dee Special Fertilizer	8.00	2.47	3.00
Pee Dee Special for Tobacco.....	8.00	2.47	3.00
Acme 8-3-3 C. S. M. Guano.....	8.00	2.47	3.00
Acme 8-3-3 C. S. M. Guano for Tobacco.....	8.00	2.47	3.00
Acme Plant Food	8.00	2.47	2.50
Acme Fertilizer for Tobacco.....	8.00	2.47	2.50
Acme Fertilizer	8.00	2.47	2.50
Tip Top Crop Grower.....	8.00	2.06	3.00
Tip Top Tobacco Grower.....	8.00	2.06	2.00
Latimer's Complete Fertilizer	8.00	2.06	2.00
Acme Standard Guano.....	8.00	2.06	2.00
Best's Complete Fertilizer.....	8.00	2.06	2.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Cotton-seed Meal Guano.....	8.00	1.65	2.00
Gem Fertilizer	8.00	1.65	2.00
Cotton-seed Meal Guano for Tobacco.....	8.00	1.65	2.00
Gem Fertilizer for Tobacco.....	8.00	1.65	2.00
Acme Special Grain Fertilizer.....	8.00	1.65	2.00
Acme Bone and Potash.....	8.00	....	6.00
Acme Bone and Potash.....	8.00	....	5.00
Acme Bone and Potash.....	8.00	....	4.00
Acme Root Crop Guano.....	7.00	4.12	7.00
Acme Standard Truck Guano	7.00	4.12	5.00
Acme High Grade Guano.....	6.00	4.94	8.00
Acme Truck Grower	6.00	3.30	8.00
Acme Corn Guano.....	6.00	2.47	3.00
Dried Fish Scrap.....	4.50	8.02	....
Acme Special 4-10-4 Guano.....	4.00	8.25	4.00
Clark's Corn Guano.....	1.00	6.58	10.00
Sulphate of Ammonia.....	....	20.56	....
Nitrate of Soda.....	....	14.81	....
Dried Ground Blood.....	....	12.95	....
Acme Top Dresser.....	....	7.40	3.00
Sulphate of Potash.....	....	....	48.00
Muriate of Potash.....	....	....	48.00
High Grade German Kainit 16 Per Cent....	....	....	16.00
Genuine German Kainit.....	....	....	12.00

Ashepoo Fertilizer Co., Charleston, S. C.—

High Grade Ashepoo Dissolved Phosphate....	16.00	....	....
High Grade Ashepoo Acid Phosphate.....	14.00	....	....
High Grade Ashepoo XXXX Acid Phosphate....	14.00	....	....
High Grade Eutaw Acid Phosphate.....	14.00	....	....
Standard Ashepoo XXX Acid Phosphate....	13.00	....	....
Standard Carolina Acid Phosphate.....	13.00	....	....
Standard Circle Bone.....	13.00	....	....
H. G. Ashepoo Bone and Potash.....	12.00	....	2.00
Standard Ashepoo Acid Phosphate and Potash..	12.00	....	1.00
Standard Eutaw Acid Phosphate and Potash..	12.00	....	1.00
Standard Ashepoo Dissolved Bone.....	12.00	....	....
Standard Eutaw XX Acid Phosphate.....	12.00	....	....
Standard Coomassie Acid Phosphate.....	12.00	....	....
Standard Ashepoo XX Acid Phosphate.....	12.00	....	....
Standard Ashepoo Potash and Acid Phosphate..	11.00	....	1.00
Standard Eutaw Potash Acid Phosphate....	11.00	....	1.00
Standard Palmetto Potash Acid Phosphate..	11.00	....	1.00
High Grade Ashepoo Watermelon Guano.....	10.00	3.29	5.00
H. G. Ashepoo Cantaloupe Guano.....	10.00	2.46	10.00
H. G. Ashepoo Fruit Fertilizer.....	10.00	1.65	6.00
H. G. Ashepoo Golden Fertilizer.....	10.00	1.65	2.00
H. G. Eutaw Superpotash Acid Phosphate...	10.00	....	4.00
Standard Ashepoo Potash Compound.....	10.00	....	3.00
Standard Enoree Acid Phosphate and Potash..	10.00	....	2.00
Standard Ashepoo Wheat and Oats Specific..	9.50	1.65	1.00
Standard Ashepoo Fertilizer.....	9.00	1.85	1.00
Standard Eutaw Fertilizer.....	9.00	1.85	1.00
Standard Ashepoo Harrow Brand Raw Bone Superphosphate	9.00	1.65	2.00
Standard Eutaw XXX Guano.....	9.00	1.65	2.00
Standard Ashepoo Guano.....	8.50	2.06	1.00
Standard Eutaw XX Guano.....	8.50	1.65	2.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Standard Ashepoo XX Guano.....	8.50	1.65	2.00
High Grade Ashepoo Fruit Grower.....	8.00	3.91	2.75
High Grade Ashepoo Perfection Guano.....	8.00	3.29	6.00
High Grade Ashepoo Guano.....	8.00	3.29	4.00
High Grade Eutaw Special Cotton-seed Meal Guano	8.00	2.46	4.00
High Grade Eutaw X Golden Fertilizer.....	8.00	2.46	4.00
High Grade Ashepoo Cotton Fertilizer.....	8.00	2.46	3.00
High Grade Ashepoo XX Ammoniated Super- phosphate	8.00	2.46	3.00
High Grade Ashepoo Bird and Fish Guano....	8.00	2.46	3.00
High Grade Ashepoo Meal Mixture.....	8.00	2.46	3.00
High Grade Ashepoo X Tobacco Fertilizer...	8.00	2.46	3.00
High Grade Ashepoo Golden Tobacco Pro- ducer	8.00	2.46	3.00
High Grade Carolina XXX Guano.....	8.00	2.46	3.00
H. G. Ashepoo Special C. S. M. Guano.....	8.00	2.46	2.00
High Grade Ashepoo Ammoniated Superphos- phate	8.00	2.46	2.00
High Grade Ashepoo Farmers' Special.....	8.00	2.06	3.00
Standard Eutaw Circle Guano	8.00	2.06	2.00
Standard Ashepoo Circle Guano.....	8.00	2.06	2.00
Standard Coomassie Circle Fertilizer.....	8.00	1.65	2.00
Standard Carolina Guano.....	8.00	1.65	2.00
Standard P. D. Fertilizer.....	8.00	1.65	2.00
Standard Ashepoo XXX Guano.....	8.00	1.65	2.00
Standard Ashepoo XXX Meal Guano.....	8.00	1.65	2.00
Standard Ashepoo Special Fertilizer.....	8.00	1.65	2.00
Standard Bronwood Acid Phosphate.....	8.00	....	4.00
High Grade Ashepoo Truck Guano.....	7.00	4.12	5.00
H. G. Campbell Mixture.....	5.50	2.06	9.00
High Grade Ashepoo Vegetable Guano.....	5.00	4.12	5.00
High Grade Ashepoo Nitrogenous Top Dress- ing	3.00	7.00	2.00
Nitrate of Soda.....	....	14.81	....
Muriate of Potash .....	....	....	45.00
German Kainit .....	....	....	12.00

*The Armour Fertilizer Works, Atlanta, Chicago.
Wilmington, and Greensboro—*

Bone Meal	Total	24.00	2.47	....
Armour's Raw Bone Meal.....	Total	22.00	3.70	....
17 Per Cent Acid Phosphate.....		17.00	....	....
16 Per Cent Acid Phosphate.....		16.00	....	....
15 Per Cent Acid Phosphate.....		15.00	....	....
Star Phosphate.....		14.00	....	....
13 Per Cent Acid Phosphate.....		13.00	....	....
Shield Brand.....		12.00	....	6.00
12 Per Cent Acid Phosphate.....		12.00	....	....
Sampson Corn Mixture.....		11.00	....	5.00
Fertilizer, No. 1045.....		10.00	3.30	5.00
Fertilizer, No. 1044.....		10.00	3.30	4.00
Fertilizer, No. 1033.....		10.00	2.47	3.00
Fertilizer, No. 1025.....		10.00	1.65	5.00
Fertilizer, No. 1023.....		10.00	1.65	3.00
Armour's Wheat Grower.....		10.00	1.65	2.00
Ammoniated Dissolved Bone and Potash.....		10.00	1.65	2.00
Special Mixture		10.00	1.03	6.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Phosphate and B. Potash.....	10.00	....	6.00
Phosphoric Acid and Potash.....	10.00	....	5.00
Superphosphate and Potash.....	10.00	....	4.00
Shield Phosphate and Potash	10.00	....	3.00
M. H. White Co.'s Special Corn Mixture.....	10.00	....	2.00
Phosphate and Potash, No. 1.....	10.00	....	2.00
Armour's Tobacco Champion.....	9.00	2.47	3.00
African Cotton Grower.....	9.00	2.47	3.00
Johnson's High Grade	9.00	2.05	5.00
Forsyth County Tobacco Special.....	9.00	2.05	3.00
Armour's Bright Tobacco Grower.....	9.00	1.65	3.00
Bone and Dissolved Bone with Potash.....	9.00	1.65	3.00
Fertilizer, No. 913	9.00	.82	3.00
Armour's Phosphate and Potash.....	9.00	....	3.00
Standard Cotton Grower.....	8.50	1.65	2.00
Tobacco Fertilizer	8.50	1.65	2.00
Bone, Blood and Potash.....	8.00	4.11	7.00
Van Lindley's Special	8.00	4.11	2.00
Fertilizer, No. 846	8.00	3.30	6.00
Fertilizer, No. 844	8.00	3.30	4.00
Special Trucker	8.00	3.30	4.00
Sunrise Fertilizer, No. 844.....	8.00	3.30	4.00
All Soluble	8.00	2.88	4.00
Truck and Berry Special.....	8.00	2.47	10.00
Armour's S36 for Tobacco.....	8.00	2.47	6.00
Fertilizer, No. 836	8.00	2.47	6.00
Fertilizer, No. 834	8.00	2.47	4.00
Fertilizer, No. 833	8.00	2.47	3.00
Sunrise Fertilizer, No. 833.....	8.00	2.47	3.00
Underwood's Favorite	8.00	2.47	3.00
Cotton Special	8.00	2.47	3.00
Tobacco Special	8.00	2.47	3.00
Armour's S32½	8.00	2.47	2.50
Carolina Cotton Grower	8.00	2.47	2.00
Berry King	8.00	2.05	4.00
Sunrise Cotton Grower	8.00	2.05	3.00
Gold Medal for Tobacco.....	8.00	2.05	3.00
Sweet Potato Special	8.00	2.05	3.00
Champion	8.00	2.05	2.50
King Cotton	8.00	2.05	2.00
High Grade Potato	8.00	1.65	10.00
Fruit and Root Crop Special.....	8.00	1.65	5.00
Stokes & Co. Tobacco Special.....	8.00	1.65	5.00
Shield Brand Fertilizer, No. 824.....	8.00	1.65	4.00
Carolina Cotton Special	8.00	1.65	3.00
Sunrise Tobacco Grower	8.00	1.65	3.00
Sunrise Standard	8.00	1.65	2.00
Slaughter House for Tobacco.....	8.00	1.65	2.00
Armour's Slaughter House Fertilizer.....	8.00	1.65	2.00
General	8.00	1.65	2.00
Shield Brand Fertilizer, No. 814.....	8.00	.82	4.00
Fertilizer, No. 813	8.00	.82	3.00
Phosphate and Potash, No. 2.....	8.00	....	5.00
Phosphate and Potash, No. 3.....	8.00	....	4.00
Special for Tobacco	8.00	2.47	5.00
Fertilizer No. 835	8.00	2.47	5.00
Young's Special	8.00	4.11	3.00
Slate's Tobacco Special	8.00	1.85	4.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Fertilizer, No. 758	7.00	4.11	8.00
7 Per Cent Trucker.....	6.00	5.76	5.00
5 Per Cent Trucker.....	6.00	4.11	7.00
Manure Substitute	6.00	3.30	4.00
Armour's Velvet Leaf	6.00	2.47	7.00
10 Per Cent Trucker	5.00	8.24	3.00
Top Dresser	5.00	8.24	2.00
Armour's Top Dresser	4.00	6.18	2.50
Special Formula for Tobacco.....	4.00	3.30	5.00
Harvey's Special	4.00	3.30	4.00
10 Per Cent Tankage.....	2.00	8.24	....
Harris Electric Top Dresser.....	2.00	8.23	3.00
Sulphate of Ammonia .....	....	20.00	....
Nitrate of Soda .....	....	14.81	....
Dried Blood .....	....	13.16	....
Armour's Top Dresser .....	....	7.83	4.00
Armour's Top Dresser .....	....	7.40	3.00
Sulphate of Potash .....	....	....	50.00
Muriate of Potash .....	....	....	50.00
Kainit .....	....	....	12.00

American Fertilizer Co., Norfolk, Va.—

Bone Meal	Total	22.50	3.71	....
American High Grade Acid Phosphate.....		16.00	....	....
High Grade Acid Phosphate.....		14.00	....	....
Eagle Brand Acid Phosphate.....		13.00	....	....
Double Extra Bone and Potash.....		12.00	....	5.00
Acid Phosphate		12.00	....	....
American Standard Cotton Grower.....		10.00	1.65	2.00
American Formula for Wheat and Corn.....		10.00	....	5.00
Double Dissolved Bone and Potash.....		10.00	....	4.00
Dissolved Bone and Potash for Corn and Wheat		10.00	....	2.00
Special Formula Guano for Yellow Leaf To- bacco		9.00	2.88	5.00
Pitt County Special Fertilizer.....		9.00	2.88	5.00
Capital King Cotton Grower.....		9.00	2.26	2.00
American Excelsior Guano		9.00	1.65	3.00
Bone and Peruvian Guano.....		9.00	1.65	2.00
American Bone Mixture		9.00	.83	2.00
Blood and Bone Compound.....		8.50	2.06	1.00
Peruvian Mixture		8.50	1.65	1.50
Peruvian Mixture Guano Especially Prepared for Sweet Potatoes		8.00	3.29	5.00
N. C. and S. C. Cotton Grower.....		8.00	3.29	4.00
American Eagle Guano.....		8.00	2.47	3.00
J. G. Miller & Co.'s Yellow Leaf Fertilizer....		8.00	2.47	3.00
American No. 1 Fertilizer.....		8.00	2.06	3.00
Bob White Fertilizer for Tobacco.....		8.00	2.06	2.50
A. L. Hannah's Special Formula.....		8.00	1.65	2.00
Bone and Peruvian Guano.....		8.00	1.65	2.00
American No. 2 Fertilizer.....		8.00	1.65	2.00
American Special Potash Mixture for Wheat.		8.00	....	4.00
10 Per Cent Ammoniated Guano.....		7.00	8.24	2.50
American 7-7-7 for Irish Potatoes.....		7.00	5.76	7.00
Standard 7 Per Cent Ammonia Guano.....		7.00	5.76	5.00
Special Potato Guano.....		7.00	4.12	7.00
American Irish Potato Grower.....		7.00	4.12	5.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
American Fish Scrap Guano.....	7.00	3.29	4.00
Stable Manure Substitute.....	7.00	2.47	4.00
Special Potato Manure.....	6.00	4.12	7.00
American Standard Top Dresser.....	4.00	8.24	4.00
Nitrate of Soda .....	....	14.83	....
Ground Fish Scrap.....	....	8.24	....
American H. G. Top Dresser.....	....	7.41	3.00
Muriate of Potash.....	....	....	49.00
Sulphate of Potash .....	....	....	48.00
Genuine German Kainit .....	....	....	12.00

Atlantic Fertilizer Co., Atlanta, Ga.—

Atlantic Acid Phosphate H. G.....	16.00		
Atlantic Acid Phosphate H. G.....	14.00	....	....
Atlantic Acid and Potash Mixture.....	11.00	....	5.00
Atlantic Cotton and Corn Fertilizer H. G....	10.00	3.29	4.00
Atlantic Cotton and Corn Fertilizer H. G....	10.00	2.47	3.00
Atlantic Cotton and Corn Fertilizer H. G....	10.00	1.65	2.00
Atlantic Cotton and Corn Fertilizer S. G....	10.00	.82	3.00
Atlantic Acid and Potash Mixture H. G.....	10.00	....	4.00
Atlantic Acid and Potash Mixture S. G.....	10.00	....	2.00
Atlantic Cotton and Corn Fertilizer H. G....	9.00	2.47	3.00
Atlantic Tobacco Fertilizer.....	9.00	2.26	2.00
Atlantic Cotton and Corn Fertilizer H. G....	9.00	1.65	3.00
Atlantic Cotton-seed Meal Compound H. G....	9.00	1.65	3.00
Atlantic Truck Fertilizer H. G.....	8.00	4.12	7.00
Atlantic Cotton and Corn Fertilizer H. G....	8.00	3.29	4.00
Atlantic Tobacco Fertilizer 11½ Grade.....	8.00	3.29	4.00
Atlantic Cotton and Corn Fertilizer H. G....	8.00	2.47	5.00
Atlantic Tobacco Fertilizer.....	8.00	2.47	3.00
Atlantic Cotton and Corn Fertilizer H. G....	8.00	2.47	3.00
Atlantic Cotton-seed Meal Compound H. G....	8.00	2.47	3.00
Atlantic Tobacco Fertilizer.....	8.00	2.26	2.00
Atlantic Tobacco Fertilizer.....	8.00	2.06	3.00
Atlantic Cotton and Corn Fertilizer S. G....	8.00	1.65	3.00
Atlantic Tobacco Fertilizer.....	8.00	1.65	2.00
Atlantic Cotton and Corn Fertilizer S. G.....	8.00	1.65	2.00
Atlantic Grain Fertilizer Ammoniated S. G....	8.00	.82	4.00
Atlantic Acid and Potash Mixture H. G.....	8.00	....	6.00
Atlantic Acid and Potash Mixture S. G.....	8.00	....	4.00
Atlantic Truck Fertilizer.....	6.00	4.12	7.00
Atlantic Top Dresser	5.00	8.23	3.00
Atlantic Top Dresser	5.00	4.94	2.50
Atlantic Top Dresser	4.00	6.18	2.00
Atlantic Nitrate of Soda.....	....	14.82	....
Atlantic Top Dresser .....	....	7.40	4.00
Atlantic Top Dresser .....	....	7.40	3.00
Atlantic Top Dresser .....	....	6.58	4.00
Atlantic Muriate of Potash.....	....	....	50.00
Atlantic German Kainit.....	....	....	12.00

*American Agricultural Chemical Co., Baltimore,
Greensboro, and New York—*

A. A. C. Co.'s 16 Per Cent Superphosphate....	16.00	....	....
Canton Chemical 16 Per Cent Acid Phosphate.	16.00	....	....
Detrick's 16 Per Cent Acid Phosphate.....	16.00	....	....
Lazaretto 16 Per Cent Acid Phosphate.....	16.00	....	....
Zell's 16 Per Cent Acid Phosphate.....	16.00	....	....

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Lazaretto 14 Per Cent Acid Phosphate.....	14.00	....	....
Canton Chemical 14 Per Cent Acid Phosphate.	14.00	....	....
Detrick's XXtra Acid Phosphate.....	14.00	....	....
Zell's 14 Per Cent Acid Phosphate.....	14.00	....	....
Zell's 13 Per Cent Acid Phosphate.....	13.00	....	....
Detrick's H. G. Bone and Potash.....	12.00	....	5.00
Zell's H. G. Bone and Potash.....	12.00	....	5.00
Zell's Sterling High Grade	10.00	3.29	4.00
Young's Melon Fertilizer.....	10.00	2.47	10.00
Champion Cotton Fertilizer.....	10.00	2.47	3.00
Zell's H. G. Bone and Potash.....	10.00	....	4.00
Detrick's H. G. Bone and Potash.....	10.00	....	4.00
Canton Chemical Soluble Phosphate and Potash	10.00	....	4.00
Lazaretto H. G. Alkaline Bone.....	10.00	....	4.00
Zell's Bone and Potash.....	10.00	....	2.00
Lazaretto Alkaline Bone	10.00	....	2.00
Detrick's Bone and Potash.....	10.00	....	2.00
Canton Chemical Soluble Phosphate and Potash	10.00	....	2.00
A. A. C. Co.'s Top Notch Special.....	9.00	2.47	7.00
A. A. C. Co.'s Special Tobacco Fertilizer.....	9.00	2.47	3.00
A. A. C. Co.'s High Grade C. S. M. Compound.	9.00	2.26	2.00
Productive Cotton and Peanut Grower.....	9.00	2.26	2.00
Zell's Royal High Grade Fertilizer.....	9.00	2.06	2.00
Detrick's Superior Animal Bone Fertilizer....	9.00	1.85	4.00
Canton Chemical Animal Bone Fertilizer....	9.00	1.85	4.00
Zell's Victoria Animal Bone Compound.....	9.00	1.85	4.00
Lazaretto Retriever Animal Bone Fertilizer..	9.00	1.85	4.00
Zell's Empire Cotton Compound.....	9.00	1.65	3.00
A. A. C. Co.'s Harvest Queen.....	9.00	1.65	2.00
Gold Dust Guano.....	9.00	1.65	2.00
Zell's Hustler Phosphate	9.00	.82	3.00
Pacific Guano for Tobacco.....	8.50	2.47	2.50
Reese's Potato and Truck Special.....	8.00	3.29	7.00
Zell's Popular Tobacco Manure.....	8.00	3.29	4.00
Detrick's Kangaroo Komplete Kompound Special High Grade	8.00	3.29	4.00
Lazaretto Carolina Cotton Food.....	8.00	3.29	4.00
A. A. C. Co.'s Palmetto C. S. M. Compound...	8.00	3.29	4.00
Canton Chemical Bono Tobacco Fertilizer....	8.00	3.29	4.00
Zell's Economizer Cotton Food.....	8.00	3.29	4.00
A. A. C. Co.'s Excelsior Compound for Tobacco	8.00	2.47	5.00
Detrick's Gold Eagle Cotton Compound.....	8.00	2.47	4.00
Detrick's Kangaroo Komplete Kompound for Tobacco	8.00	2.47	4.00
Lazaretto King of the Harvest.....	8.00	2.47	4.00
Zell's Tobacco Fertilizer.....	8.00	2.47	4.00
Canton Chemical Homestead Protector.....	8.00	2.47	4.00
Canton Chemical Gladiator Cotton Fertilizer.	8.00	2.47	3.00
A. A. C. Co.'s Eureka Cotton-seed Meal Compound	8.00	2.47	3.00
Detrick's Special Tobacco Fertilizer.....	8.00	2.47	3.00
Canton Chemical Baker's Tobacco Fertilizer..	8.00	2.47	3.00
Canton Chemical Superior High Grade Fertilizer	8.00	2.47	3.00
Detrick's Victory Cotton Fertilizer.....	8.00	2.47	3.00
Detrick's Kangaroo Komplete Kompound			
Bright Tobacco Grower.....	8.00	2.47	3.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Detrick's Kangaroo Komplete Kompond for Cotton	8.00	2.47	3.00
Zell's Bright Tobacco Grower.....	8.00	2.47	3.00
Zell's Reliance High Grade Manure.....	8.00	2.47	3.00
Lazaretto New Rival Cotton Fertilizer.....	8.00	2.47	3.00
Lazaretto Special Tobacco and Potato Fertilizer	8.00	2.47	3.00
Lazaretto Challenge Fertilizer.....	8.00	2.47	3.00
Lazaretto Carolina Tobacco Fertilizer.....	8.00	2.47	3.00
Canton Chemical CCC Special Compound.....	8.00	2.06	6.00
Detrick's Vegetator Ammoniated Superphosphate	8.00	2.06	6.00
Zell's "Square Deal" for Tobacco.....	8.00	2.06	3.00
Lazaretto Climax Plant Food.....	8.00	2.06	3.00
Slingluff's British Mixture.....	8.00	2.06	2.50
Excelsior Bone Compound	8.00	1.65	5.00
Detrick's Kangaroo Komplete Compound.....	8.00	1.65	3.00
Savage, Son & Co.'s Brand Purity Guano....	8.00	1.65	2.00
Dawson's Crop Maker.....	8.00	1.65	2.00
Triumph Soluble Guano.....	8.00	1.65	2.00
Canton Chemical Baker's Fish Guano.....	8.00	1.65	2.00
Canton Chemical Game Guano.....	8.00	1.65	2.00
Detrick's Royal Crop Grower.....	8.00	1.65	2.00
Detrick's Fish Mixture.....	8.00	1.65	2.00
Lazaretto Crop Grower.....	8.00	1.65	2.00
Zell's Special Compound for Tobacco.....	8.00	1.65	2.00
Zell's Calvert Guano.....	8.00	1.65	2.00
Zell's Fish Guano.....	8.00	1.65	2.00
Reese's Pacific Guano.....	8.00	1.65	2.00
The A. A. C. Co. Fidelity Grain Grower.....	8.00	.82	4.00
Lazaretto Peanut Grower.....	8.00	.82	4.00
A. A. C. Co.'s Regal Crop Grower.....	8.00	.82	3.00
A. A. C. Co.'s Palmetto Alkaline Phosphate..	8.00	....	4.00
Lazaretto King of the Harvest.....	8.00	2.47	4.00
Lazaretto Early Trucker.....	7.00	4.11	5.00
A. A. C. Co.'s Blood, Bone and Fish Compound	7.00	3.29	5.00
Lazaretto Truckers' Favorite.....	6.00	5.76	5.00
Lazaretto Empire Trucker.....	6.00	4.11	7.00
A. A. C. Co.'s Nitrate of Soda.....	....	15.00	....
A. A. C. Co.'s Baltimore Top Dresser.....	....	7.41	3.00
Maryland Top Dresser .....	....	7.41	3.00
A. A. C. Co.'s Muriate of Potash.....	....	....	49.00
A. A. C. Co.'s Genuine German Kainit.....	....	....	12.00

American Agricultural Chemical Co., Farmers Fertilizer Works, Spartanburg, S. C.—

Red Rooster Acid Phosphate.....	16.00	....	....
Red Rooster Acid Phosphate.....	14.00	....	....
Red Rooster Bone and Potash.....	13.00	....	6.00
Red Rooster Bone and Potash	12.00	....	6.00
Red Rooster Fertilizer.....	10.00	3.30	4.00
Red Rooster Fertilizer.....	10.00	3.30	4.00
Red Rooster Fertilizer	10.00	2.47	3.00
Red Rooster Blood, Bone and Potash.....	10.00	2.47	2.00
Red Rooster Fertilizer.....	10.00	2.00	4.00
Red Rooster Money Maker.....	10.00	1.85	3.00
Red Rooster Blood, Bone and Potash Fertilizer	10.00	1.65	8.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Red Rooster Cotton Grower.....	10.00	1.65	3.00
Red Rooster Fertilizer.....	10.00	1.65	2.00
Red Rooster Fertilizer	10.00	1.65	2.00
Red Rooster Grain Grower.....	10.00	.82	5.00
Red Rooster Bone and Potash.....	10.00	....	6.00
Red Rooster Bone and Potash.....	10.00	....	4.00
Red Rooster Bone and Potash.....	10.00	....	2.00
Red Rooster Fertilizer.....	9.00	2.47	3.00
Red Rooster Fertilizer.....	9.00	2.47	2.00
Red Rooster Blood and Bone.....	9.00	1.65	3.00
Red Rooster Beats All Fertilizer.....	9.00	1.65	2.00
Red Rooster Fertilizer.....	8.00	4.10	7.00
Red Rooster Fertilizer.....	8.00	3.30	8.00
Red Rooster Fertilizer.....	8.00	3.30	4.00
Red Rooster Truck Guano.....	8.00	3.30	4.00
Red Rooster Farmers' Favorite Fertilizer....	8.00	2.47	3.00
Red Rooster Fertilizer.....	8.00	2.05	1.00
Red Rooster Fertilizer.....	8.00	1.65	10.00
Red Rooster Corn Grower.....	8.00	1.65	5.00
Red Rooster Special Corn Mixture.....	8.00	1.65	4.00
Red Rooster Fertilizer.....	8.00	1.65	2.00
Red Rooster Bone and Potash.....	8.00	....	4.00
Red Rooster Potato Fertilizer.....	7.00	3.30	5.00
Red Rooster Special Garden Grower.....	7.00	2.47	4.00
Red Rooster Lawn Grower.....	7.00	2.47	4.00
Red Rooster	6.00	4.00	8.00
Red Rooster Top Dresser.....	5.00	5.75	3.00

*American Agricultural Chemical Co., Dixie Guano
Branch, Spartanburg, S. C.—*

Dixie Acid Phosphate.....	16.00	....	....
Dixie Acid Phosphate.....	14.00	....	....
Dixie Bone and Potash.....	13.00	....	6.00
Dixie Fertilizer	10.00	3.30	4.00
Dixie Fertilizer	10.00	2.47	3.00
Dixie Blood, Bone and Potash.....	10.00	2.47	2.00
Dixie Cotton Grower.....	10.00	1.65	3.00
Dixie Fertilizer	10.00	1.65	2.00
Dixie Grain Grower	10.00	.82	5.00
Dixie Bone and Potash.....	10.00	....	4.00
Dixie Fertilizer	9.00	2.47	3.00
Dixie Fertilizer	9.00	2.47	2.00
Dixie Blood and Bone.....	9.00	1.65	3.00
Dixie Fertilizer	9.00	1.65	2.00
Dixie Fertilizer	8.00	4.10	7.00
Dixie Fertilizer	8.00	4.10	7.00
Dixie Fertilizer	8.00	3.30	4.00
Dixie Fertilizer	8.00	2.47	3.00
Dixie Fertilizer	8.00	2.05	1.00
Dixie Fertilizer	8.00	1.65	10.00
Dixie Fertilizer	8.00	1.65	10.00
Dixie Special Corn Mixture.....	8.00	1.65	4.00
Dixie Fertilizer	8.00	1.65	2.00
Dixie Bone and Potash.....	8.00	....	4.00
Dixie Lawn Grower	7.00	2.47	4.00
Dixie Special Garden Grower.....	7.00	2.47	4.00
Dixie Top Dresser	5.00	5.75	3.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
<i>American Agricultural Chemical Co., Homestead Fertilizer Branch, Spartanburg, S. C.—</i>			
Homestead Acid Phosphate	16.00	....	....
Homestead Acid Phosphate	14.00	....	....
Homestead Bone and Potash.....	13.00	....	6.00
Homestead Fertilizer	10.00	3.30	4.00
Homestead Fertilizer	10.00	2.47	3.00
Homestead Fertilizer	10.00	2.47	3.00
Homestead Fertilizer	10.00	2.47	2.00
Homestead Blood, Bone and Potash.....	10.00	2.47	2.00
Homestead Cotton Grower	10.00	1.65	3.00
Homestead Fertilizer	10.00	1.65	2.00
Homestead Bone and Potash.....	10.00	....	4.00
Homestead Fertilizer	9.00	2.47	3.00
Homestead Fertilizer	9.00	2.47	2.00
Homestead Fertilizer	9.00	1.65	3.00
Homestead Blood and Bone.....	9.00	1.65	3.00
Homestead Fertilizer	9.00	1.65	2.00
Homestead Fertilizer	8.00	4.10	7.00
Homestead Fertilizer	8.00	3.30	4.00
Homestead Fertilizer	8.00	2.47	3.00
Homestead Fertilizer	8.00	2.05	1.00
Homestead Special Corn Mixture.....	8.00	1.65	4.00
Homestead Fertilizer	8.00	1.65	4.00
Homestead Fertilizer	8.00	1.65	2.00
Homestead Bone and Potash.....	8.00	....	4.00
Homestead Fertilizer	7.00	2.47	4.00
Homestead Special Garden Grower.....	7.00	2.47	4.00
Homestead Lawn Grower	7.00	2.47	4.00
Homestead Fertilizer	5.00	5.75	3.00
Homestead Top Dresser	5.00	5.75	3.00

A. D. Adair and McCarty Bros., Atlanta, Ga.—

Adair's High Grade Dissolved Bone, No. 16...	16.00	....	....
A. and M. 15-4.....	15.00	....	4.00
A. and M. 13-4.....	13.00	....	4.00
McCarty's Potash Formula, No. 5.....	12.00	....	5.00
McCarty's Potash Formula, No. 4.....	12.00	....	4.00
McCarty's Potash Formula.....	12.00	....	2.00
Adair's Dissolved Bone	12.00	....	....
David Harum Extra High Grade Guano....	10.00	3.30	4.00
Adair's H. G. Blood and Bone Guano.....	10.00	2.47	3.00
Special Wheat Compound.....	10.00	1.65	4.00
Special Corn Compound.....	10.00	1.65	4.00
Special Vegetable Compound.....	10.00	1.65	4.00
Special Potato Compound.....	10.00	1.65	4.00
Special Cotton Compound.....	10.00	1.65	4.00
Special Tomato Compound	10.00	1.65	4.00
Adair's Soluble Pacific Guano.....	10.00	1.65	2.00
McCarty's High Grade Cotton Grower (C. S. M.)	10.00	1.65	2.00
McCarty's High Grade Corn Grower (C. S. M.)	10.00	1.65	2.00
Old Time Fish Scrap Guano.....	10.00	1.65	2.00
McCarty's Wheat Special	10.00	.82	3.00
McCarty's Corn Special	10.00	.82	3.00
McCarty's Cotton Special	10.00	.82	3.00
Adair's H. G. Potash Compound, No. 10.....	10.00	....	10.00
Adair's Wheat and Corn Grower, No. 8.....	10.00	....	8.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
H. G. Potash Compound, No. 8.....	10.00	....	8.00
H. G. Potash Compound, No. 6.....	10.00	....	6.00
Adair's Wheat and Corn Grower, No. 6.....	10.00	....	6.00
Adair's Wheat and Corn Grower, No. 5.....	10.00	....	5.00
H. G. Potash Compound, No. 5.....	10.00	....	5.00
High Grade Potash Compound.....	10.00	....	4.00
Adair's Wheat and Corn Grower.....	10.00	....	4.00
Adair's Formula	10.00	....	2.00
Dixie High Grade Soil Food.....	9.00	1.65	3.00
Adair's Blood, Bone and Tankage Guano.....	9.00	.82	2.00
Special Corn Grower	8.00	1.65	6.00
Special Wheat Grower	8.00	1.65	6.00
Special Potato Grower	8.00	1.65	6.00
Special Vegetable Grower	8.00	1.65	6.00
Standard Corn Grower	8.00	1.65	2.00
Planter's Soluble Fertilizer (C. S. M.).....	8.00	1.65	2.00
Adair's Ammoniated Dissolved Bone.....	8.00	1.65	2.00
Golden Grain Compound	8.00	.82	3.00
Adair's Special Potash Mixture, No. 6.....	8.00	....	6.00
Adair's Special Potash Mixture, No. 5.....	8.00	....	5.00
Adair's Special Potash Mixture.....	8.00	....	4.00
Nitrate of Soda .....	....	15.00	....
Muriate of Potash .....	....	....	50.00

Asheville Packing Co., Asheville, N. C.—

Asheville Packing Co.'s Pure Bone Meal, Total	18.00	2.47	
Asheville Packing Co.'s H. G. Phosphoric Acid	16.00	....	....
Asheville Packing Co.'s Standard Phosphoric Acid	14.00	....	....
Asheville Packing Co.'s Extra H. G. Potash Mixture	13.00	....	4.00
Asheville Packing Co.'s Standard Phosphoric Acid	12.00	....	....
Asheville Packing Co.'s Celebrated Tankage, Total	10.00	4.12	....
Asheville Packing Co.'s Extra H. G. Fertilizer	10.00	3.30	4.00
Asheville Packing Co.'s Blood and Bone.....	10.00	2.47	3.00
Asheville Packing Co.'s H. G. Cotton Special	10.00	1.65	4.00
Asheville Packing Co.'s High Grade Biltmore Wheat Grower	10.00	1.65	3.00
Asheville Packing Co.'s H. G. Wheat, Corn and Oat Special	10.00	1.65	2.00
Asheville Packing Co.'s Standard Bone and Potash	10.00	.82	1.00
Asheville Packing Co.'s Superior Potato and Wheat Fertilizer	10.00	....	6.00
Asheville Packing Co.'s Special Potash Mixture	10.00	....	4.00
Asheville Packing Co.'s XXX Wheat Grower	10.00	....	2.00
Asheville Packing Co.'s Standard Potato Fertilizer	9.00	.82	2.00
Asheville Packing Co.'s H. G. Vegetable Special	8.00	4.12	5.00
Asheville Packing Co.'s Corn and Vegetable Special	8.00	2.47	3.00
Asheville Packing Co.'s Special Tobacco and Vegetable Fertilizer	8.00	2.47	3.00
Asheville Packing Co.'s Fruit Special.....	8.00	1.65	6.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Asheville Packing Co.'s Potato Special.....	8.00	1.65	6.00
Asheville Packing Co.'s Excelsior Potato Fer- tilizer	8.00	1.65	4.00
Asheville Packing Co.'s Complete Fertilizer..	8.00	1.65	2.00
Asheville Packing Co.'s Standard Corn and Wheat	8.00	.82	3.00
Asheville Packing Co.'s Special Bone and Pot- ash	8.00	....	4.00
Asheville Packing Co.'s Extra H. G. Potato Special	5.00	5.77	9.00
Asheville Packing Co.'s H. G. Muriate of Pot- ash			50.00

J. A. Benton, Ruffin, N. C.—

Benton's N. C. Bright Top Fertilizer.....	9.00	1.65	2.00
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Baugh & Sons Co., Phila., Pa., and Norfolk, Va.—

Baugh's Raw Bone Meal, Warranted Pure, Total	21.50	3.70	
Baugh's 16 Per Cent Acid Phosphate.....	16.00	....	....
Baugh's Pure Bone and Muriate of Potash Mixture	15.00	2.47	5.00
Baugh's High Grade Acid Phosphate.....	14.00	....	....
Baugh's Pure Dissolved Animal Bones.....	13.00	2.06	....
Baugh's 12 and 5 Phosphate and Potash.....	12.00	....	5.00
Baugh's High Grade Cotton and Truck Guano	10.00	1.65	2.00
Baugh's 10 and 8 Phosphate and Potash.....	10.00	....	8.00
Baugh's 10 and 4 Phosphate and Potash Mix- ture	10.00	....	4.00
Baugh's Soluble Alkaline Superphosphate....	10.00	....	2.00
Baugh's Grain and Grass Grower.....	9.00	.82	2.00
Baugh's H. G. Potato Grower.....	8.00	3.30	10.00
Baugh's Fish, Bone and Potash.....	8.00	3.30	4.00
Baugh's Yucatan Special Tobacco Guano....	8.00	3.30	4.00
Baugh's Fruit and Berry Guano.....	8.00	2.47	10.00
Baugh's Special Tobacco Guano.....	8.00	2.47	5.00
Baugh's Grand Rapids High Grade Guano...	8.00	2.47	3.00
Baugh's Sweet Potato Guano for Sweet Pota- toes, Peas and Melons.....	8.00	2.47	3.00
Baugh's High Grade Tobacco Guano.....	8.00	2.47	3.00
Baugh's Complete Animal Base Fertilizer....	8.00	1.65	5.00
Baugh's Fish Mixture	8.00	1.65	2.00
Baugh's Animal Base and Potash Compound for All Crops.....	8.00	1.65	2.00
Baugh's Wheat Fertilizer for Wheat and Grass	8.00	1.65	2.00
Baugh's Southern States Excelsior Guano....	8.00	1.00	3.00
Glover's Special Potato Guano.....	7.00	3.30	8.00
Baugh's Southern States Guano for Bright Tobacco	7.00	2.88	7.00
Baugh's Potato and Truck Special.....	7.00	2.88	7.00
Baugh's Strawberry Mixture.....	7.00	2.47	5.00
Baugh's Fine Ground Fish.....Total	6.87	8.23	....
Gilliam's Special Potato Guano.....	6.00	5.76	6.00
Baugh's 7 Per Cent Potato Guano.....	6.00	5.76	5.00
Baugh's Peruvian Guano Substitute for Pota- toes for All Vegetables.....	6.00	4.12	7.00
Gilliam's 5-6-7	6.00	4.12	7.00
Baugh's Farmers' Friend Guano.....	6.00	4.12	5.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Baugh's New Process 10 Per Cent Guano.....	5.00	8.23	2.50
Baugh's Special Potato Manure.....	5.00	1.65	10.00
II. G. Tankage	4.00	7.40	....
Baugh's Wrapper Leaf Brand for Seed Leaf Tobacco	3.50	3.30	5.00
Sulphate of Ammonia .....	....	20.57	....
Nitrate of Soda .....	....	15.04	....
Fine Ground Dried Blood.....	....	13.17	....
Baugh's Soluble Top Dresser for All Crops...	....	8.23	3.00
Muriate of Potash .....	....	....	48.00
High Grade Sulphate of Potash.....	....	....	48.00
Genuine German Kainit.....	....	....	12.00

S. T. Beveridge & Co., Richmond, Va.—

Beveridge's Raw Ground Bone Meal....Total	20.00	3.70	....
Beveridge's Thomas or Basic Slag.....Total	16.00	....	....

Bertie Cotton Oil Co., Aulander, N. C.—

Acid Phosphate	16.00	....	....
Bertie's High Grade Guano.....	8.00	4.13	5.00
Bertie's Meal Mixture	8.00	3.30	4.00
Bertie's Tobacco Grower	8.00	2.47	5.00
Bertie's Ideal Cotton Grower.....	8.00	2.47	3.00
Bertie's Special Compound	8.00	1.65	2.00
Bertie's Corn Mixture	7.00	2.47	2.00
Peanut Grower	7.00	1.65	5.00
Bertie's Peanut Special.....	7.00	.82	4.00
Mitchell's Top Dresser	3.00	6.60	3.00
Tar Heel Top Dresser.....	2.00	8.25	5.00
Nitrate of Soda .....	....	15.00	....
Sulphate of Potash .....	....	....	52.00
Muriate of Potash .....	....	....	50.00
Kainit .....	....	....	12.00

Beta Fertilizer Co., Beta, N. C.—

Beta Grass and Grain.....	10.00	....	2.00
Beta II. G. Potato.....	8.00	3.30	10.00
Beta Potato and Truck.....	8.00	3.30	7.00
Beta Cotton Grower.....	8.00	2.50	3.00
Beta Corn Grower	8.00	1.65	2.00

Baltimore Fertilizer Co., Baltimore, Md.—

Honest Acid Phosphate	16.00	....	....
Honest Acid Phosphate	14.00	....	....
Honest Bone and Potash	10.00	....	2.00
Honest Sweet Potato Grower	8.00	2.40	4.00
Honest Cotton Grower	8.00	2.40	3.00
Honest Ammoniated Bone	8.00	1.60	2.00
Honest Dixie Trucker	6.00	4.00	7.00
Honest Trucker	6.00	4.00	5.00

Bowker Fertilizer Co., Baltimore, Md., and Boston, Mass.—

16 Per Cent Dissolved Bone Phosphate.....	16.00	....	....
Bowker's Soluble Phosphate	14.00	....	....
Golden Harvest Fertilizer	12.00	....	5.00
Imperial Alkaline Phosphate.....	10.00	....	4.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Superphosphate with Potash for Grass and Grain	10.00	....	2.00
Bowker's H. G. C. S. M. Mixture.....	9.00	2.26	2.00
Animal Bone Fertilizer	9.00	1.85	4.00
Sure Crop Cotton-seed Meal Compound.....	8.00	3.29	4.00
J. C. Taylor's Fancy Wrapper Tobacco Fertilizer	8.00	2.88	7.00
Bowker's Red Oak Tobacco Fertilizer.....	8.00	2.47	7.00
Tyson's Special for Tobacco.....	8.00	2.47	5.00
Bowker's White Star Compound.....	8.00	2.47	4.00
Tobacco Fertilizer	8.00	2.47	3.00
Eureka Cotton Compound.....	8.00	2.47	3.00
Fish Guano	8.00	1.65	3.00
Excelsior C. S. M. Mixture.....	8.00	1.65	2.00
Empire Standard	8.00	1.65	2.00
Corn and Grain Grower.....	8.00	.82	4.00
Southern Special Compound	7.00	3.29	5.00
Bowker's 7 Per Cent Potato Guano.....	6.00	5.76	5.00
H. G. Top Dresser.....	....	7.41	3.00

Blackstone Guano Co., Inc., Blackstone, Va.—

Clover Leaf 16 Per Cent Phosphate.....	16.00	....	....
Bone and Phosphate Half and Half.....	15.00	1.65	....
B. G. Co. Acid Phosphate.....	14.00	....	....
Clover Leaf for Grain.....	13.00	1.03	1.00
Dissolved Bone	10.00	1.03	1.00
B. G. Co., Inc., Bone and Potash.....	10.00	....	4.00
B. G. Co. Bone and Potash.....	10.00	....	2.00
Blackstone Special for Tobacco.....	9.00	2.47	3.00
Old Belefonte	8.00	3.30	2.00
Clover Leaf for Tobacco.....	8.00	2.47	3.00
Tobacco Special	8.00	2.47	3.00
Wrapper Brand	8.00	2.47	3.00
Jim Crow for Tobacco.....	8.00	2.47	3.00
Bellefonte	8.00	2.47	2.00
Hard Cash for Tobacco.....	8.00	2.06	2.00
Carolina Special for Tobacco.....	8.00	1.65	4.00
Standard Guano	8.00	1.65	2.00
Red Letter for Tobacco.....	8.00	1.65	2.00
Alliance for Tobacco.....	8.00	1.65	2.00
Leader for Tobacco	8.00	1.65	2.00
Peanut Special	8.00	1.03	6.00
Material for Special Order.....	....	4.95	....

Banner Fertilizer Co., Benson, N. C.—

Banner High Grade Acid Phosphate.....	16.00		
Banner Bone and Potash	10.00	....	5.00
Banner Cotton Grower	8.00	2.47	5.00
Banner High Grade Tobacco Guano.....	8.00	2.47	5.00
Banner Tobacco Guano.....	8.00	2.47	3.00
Banner Guano	8.00	2.47	3.00
Banner Corn Fertilizer	8.00	1.65	5.00
Banner Top Notch Guano.....	8.00	1.65	2.00
Nitrate Soda .....	....	18.00	....
Banner Dried Blood.....	....	13.20	....
Banner Ground Tankage.....	....	8.25	....
Banner Muriate Potash.....	....	....	48.00
Banner German Kainit.....	....	....	12.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
<i>C. J. Burton Guano Co., Baltimore, Md.—</i>			
Burton's 16 Per Cent Acid Phosphate.....	16.00	....	....
Burton's 14 Per Cent Acid Phosphate.....	14.00	....	....
Burton's Alkaline	10.00	....	4.00
Burton's Potash Mixture	10.00	....	2.00
Burton's High Grade Tobacco	8.00	3.29	4.00
Burton's Best	8.00	2.47	3.00
Tobacco Queen	8.00	2.47	3.00
Burton's High Grade	8.00	2.06	3.00
Burton's Butcher Bone	8.00	1.65	2.00

Bradley Fertilizer Co., Charleston, S. C.—

High Grade Bradley's Dissolved Phosphate...	16.00	....	....
High Grade Bradley's Acid Phosphate.....	14.00	....	....
Standard Bradley's XXX Acid Phosphate...	13.00	....	....
Standard Bradley's Acid Phosphate.....	12.00	....	....
Standard Bradley's Palmetto Acid Phosphate.	12.00	....	....
H. G. Bradley's Selected Guano.....	10.00	1.65	4.00
High Grade Bradley's Potash Acid Phosphate.	10.00	....	4.00
Standard Bradley's Wheat Grower.....	10.00	....	2.00
Standard Bradley's Bone and Potash.....	10.00	....	2.00
Standard B. D. Sea Fowl Guano.....	9.00	1.85	1.00
Standard Bradley's Ammoniated Dissolved Bone	9.00	1.85	1.00
Standard Bradley's Patent Superphosphate...	9.00	1.85	1.00
Standard Eagle Ammoniated Bone Superphos- phate	9.00	1.85	1.00
High Grade Bradley's Circle Guano.....	8.00	3.29	4.00
High Grade Bradley's Guano.....	8.00	2.46	3.00
Standard Bradley's Cereal Guano.....	8.00	1.65	2.00
Standard Bradley's X Guano.....	8.00	1.65	2.00
German Kainit .....	....	....	12.00

Baltimore Fertilizer Co., Baltimore, Md.—

Honest 4-S-5	8.00	3.20	5.00
Kainit .....	....	....	12.00

The Bryant Fertilizer Co., Alexandria, Va.—

Bryant's Bone Meal.....Total	22.50	3.71	....
Bryant's Acid Phosphate	17.00	....	....
Bryant's Acid Phosphate	16.00	....	....
Bryant's S. C. Dissolved Bone.....	14.00	....	....
Bryant's H. G. Wheat Mixture.....	12.00	....	6.00
Parrish-Godwin's Dissolved Bone with Potash	12.00	....	4.00
Bryant's Bone and Potash	10.00	....	4.00
Bryant's Bone and Potash Mixture.....	10.00	....	2.00
Bryant's "Challenge" Highest Grade Tobacco Mixture	9.00	2.47	3.00
Bryant's Meal Mixture	9.00	2.47	3.00
Bryant's Special Cotton-seed Meal Fertilizer..	9.00	2.26	2.00
Bryant's Bone Mixture for Tobacco.....	9.00	2.06	2.00
Carolina Wheat and Grain Guano.....	9.00	.82	3.00
Farmers' Mixture	8.75	1.85	4.00
Bryant's H. G. Guano	8.00	3.29	4.00
Bryant's H. G. Meal Fertilizer.....	8.00	3.29	4.00
Bryant's H. G. Tobacco Fertilizer.....	8.00	3.29	4.00
Bryant's Favorite C. S. M. Guano.....	8.00	2.47	3.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Bryant's H. G. Fertilizer	8.00	2.47	3.00
Bryant's "Victor" Tobacco Fertilizer	8.00	2.47	3.00
Bryant's Choice C. S. M. 3 Per Cent Mixture.	8.00	2.47	2.00
Bryant's Tobacco Fertilizer	8.00	2.06	3.00
Bryant's "Otter" Special Tobacco Fertilizer..	8.00	2.06	3.00
Bryant's Cotton and Corn Fertilizer.....	8.00	2.06	2.00
Bryant's Special Fertilizer for Tobacco.....	8.00	2.06	2.00
Bryant's Cotton Grower	8.00	1.65	2.00
Bryant's Special Fertilizer	8.00	1.65	2.00
Bryant's Cotton-seed Meal Guano	8.00	1.65	2.00
Bryant's "Potomac" Bone Special for Tobacco	8.00	1.65	2.00
Bryant's Special Formula for Grain and Grass	8.00	.82	4.00
Bryant's Wheat Mixture	8.00	....	4.00
Bryant's Truck Grower	7.00	5.76	7.00
Bryant's Fish Scrap Guano	7.00	3.29	4.00
Bryant's Carolina Top Dresser	6.00	5.76	5.00
Bryant's High Grade Top Dresser.....	4.00	8.23	4.00
Bryant's Top Dresser	4.00	6.17	2.50
Bryant's Special Top Dresser	2.00	5.76	2.50
Nitrate of Soda .....	....	14.82	....
Blood .....	....	13.15	....
H. G. Tankage .....	....	8.25	....
Fish Scrap .....	....	8.24	....
Bryant's Carolina Special Top Dresser.....	....	7.41	3.00
Muriate of Potash .....	....	....	48.00
Sulphate of Potash .....	....	....	48.00
Genuine German Kainit .....	....	....	12.00

The Berkley Chemical Co., Norfolk, Va.—

Pure Ground Bone	Total	20.00	3.70	....
Resolute Acid Phosphate		16.00	....	....
Berkley Acid Phosphate		14.00	....	....
Berkley 12-5 Bone and Potash		12.00	....	5.00
Berkley Bone and Potash Mixture.....		11.00	....	2.00
Berkley Plant Food		10.00	....	4.00
Laurel Potash Mixture		10.00	....	2.00
Monitor Animal Bone Fertilizer.....		9.00	1.85	4.00
Select Crop Grower		8.50	2.06	2.50
Victory Special Crop Grower		8.00	3.29	4.00
Berkley Tobacco Guano		8.00	2.47	3.00
Advance Crop Grower		8.00	2.47	3.00
Brandon Superphosphate		8.00	1.65	2.00
Long Leaf Tobacco Grower.....		8.00	1.65	2.00
Berkley Peanut and Grain Grower.....		8.00	1.00	4.00
Superior Bone and Potash.....		8.00	....	4.00
Mascot Truck Guano		7.00	4.11	5.00
Royal Truck Grower		6.00	5.76	5.00
The Leader of the World.....		5.00	3.29	5.00
Berkley Top Dresser		4.00	8.23	2.00
Special Top Dresser .....		....	7.41	3.00
Nitrate of Soda .....		....	15.00	....
Dry Ground Fish .....		....	8.23	....
Muriate of Potash .....		....	....	49.00
Sulphate of Potash .....		....	....	48.00
Genuine German Kainit .....		....	....	12.00

Bragaw Fertilizer Co., Washington, N. C.—

16 Per Cent Acid	16.00	....	....
Palmetto Acid Phosphate	14.00	....	....

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Long Acre Bone Phosphate	14.00	....	....
Farmers' Union Meal Mixture.....	9.00	2.26	2.00
Beaufort County Guano	8.00	2.47	3.00
Havana Tobacco Guano	8.00	2.47	3.00
Tuckahoe Tobacco Guano	8.00	2.06	3.00
Old Reliable Premium Guano.....	8.00	1.65	2.00
Tar Heel Guano	8.00	1.65	2.00
Pamlico Trucker	7.00	4.12	8.00
7-5-5 Truck Guano	7.00	4.12	5.00
Riverview Potato Grower	6.00	5.76	5.00
Chocowinity Special Tobacco Guano.....	5.00	3.29	6.00
Sunrise Tobacco Guano	4.00	2.47	5.00
Genuine German Kainit .....	....	....	12.00

Conestee Chemical Co., Wilmington, N. C.—

16 Per Cent Acid Phosphate.....	16.00	....	....
Conestee High Grade Acid Phosphate.....	14.00	....	....
Conestee Acid Phosphate	13.00	....	....
Conestee Bone and Potash	12.00	....	6.00
Conestee Bone and Potash	12.00	....	5.00
Conestee Bone and Potash	12.00	....	4.00
Conestee Bone and Potash	12.00	....	3.00
Conestee Bone and Potash	12.00	....	2.00
Conestee Bone and Potash	11.00	....	6.00
Conestee Bone and Potash	11.00	....	5.00
Conestee Bone and Potash	11.00	....	4.00
Conestee Bone and Potash	11.00	....	3.00
Conestee Bone and Potash	11.00	....	2.00
Conestee Bone and Potash	10.00	....	6.00
Conestee Bone and Potash	10.00	....	5.00
Conestee Bone and Potash	10.00	....	4.00
Conestee Bone and Potash	10.00	....	3.00
Conestee Bone and Potash	10.00	....	2.00
Adams' Special Fertilizer	9.00	2.47	3.00
Conestee Cotton Grower	9.00	2.27	2.00
Conestee Special Fertilizer for Cotton.....	8.00	4.12	7.00
Conestee Melon Grower	8.00	4.12	7.00
Conestee O. K. Fertilizer for Tobacco.....	8.00	3.30	4.00
Conestee P. D. Q. Fertilizer.....	8.00	3.30	4.00
Conestee "O. K." Fertilizer.....	8.00	3.30	4.00
Conestee P. D. Q. Fertilizer for Tobacco.....	8.00	3.30	4.00
Conestee Plumb Good Fertilizer	8.00	2.47	4.00
Conestee Crop Grower for Tobacco.....	8.00	2.47	4.00
Conestee Fish Scrap Guano for Tobacco.....	8.00	2.47	3.00
Conestee 8-3-3 C. S. M. Guano.....	8.00	2.47	3.00
Conestee 8-3-3 C. S. M. Guano for Tobacco...	8.00	2.47	3.00
Conestee Fish Scrap Guano	8.00	2.47	3.00
Conestee Special Fertilizer	8.00	2.47	3.00
Conestee Special Tobacco Fertilizer	8.00	2.47	3.00
Conestee Fertilizer for Tobacco	8.00	2.47	2.50
Conestee Fertilizer	8.00	2.47	2.50
Conestee Crop Grower	8.00	2.06	3.00
Conestee Tobacco Grower	8.00	2.06	3.00
Conestee Complete Fertilizer	8.00	2.06	2.00
Conestee Special Grain Fertilizer	8.00	1.65	2.00
Conestee Standard Guano for Tobacco.....	8.00	1.65	2.00
Conestee Standard Guano	8.00	1.65	2.00
Cotton-seed Meal Guano for Tobacco.....	8.00	1.65	2.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Cotton-seed Meal Guano	8.00	1.65	2.00
Conestee Bone and Potash	8.00	....	6.00
Conestee Bone and Potash	8.00	....	5.00
Conestee Bone and Potash	8.00	....	4.00
Conestee Root Crop Guano	7.00	4.12	7.00
Conestee Root Crop Guano	7.00	4.12	7.00
Conestee Standard Truck Guano	7.00	4.12	5.00
Conestee Standard Truck Guano	7.00	4.12	5.00
Conestee H. G. Guano	6.00	4.94	8.00
Conestee High Grade Guano.....	6.00	4.94	8.00
Conestee Truck Grower	6.00	3.30	8.00
Conestee Truck Grower	6.00	3.30	8.00
Conestee Corn Guano	6.00	2.47	3.00
Dried Fish Scrap	4.50	8.02	....
Conestee Special Top Dresser	4.00	8.25	4.00
Sulphate of Ammonia .....	....	20.56	....
Nitrate of Soda .....	....	14.81	....
Conestee Top Dresser .....	....	7.40	3.00
Muriate of Potash .....	....	....	48.00
Sulphate of Potash .....	....	....	48.00
H. G. German Kainit 16 Per Cent.....	....	....	16.00
Genuine German Kainit .....	....	....	12.00

Columbia Guano Co., Norfolk, Va.—

Pure Raw Bone Meal.....Total	21.50	3.71	....
Columbia High Grade 16 Per Cent Acid Phos- phate	16.00	....	....
Columbia 14 Per Cent Acid Phosphate.....	14.00	....	....
Columbia Dissolved Bone	13.00	....	....
Columbia 12 and 6 Bone and Potash Mixture.	12.00	....	6.00
Columbia Acid Phosphate	12.00	....	....
Columbia 11 and 5 Bone and Potash Mixture.	11.00	....	5.00
Columbia 10½ and 1½ Bone and Potash Mix- ture	10.50	....	1.50
Columbia 10 and 5 Bone and Potash Mixture.	10.00	....	5.00
Columbia 10 and 4 Bone and Potash Mixture.	10.00	....	4.00
Columbia Bone and Potash for Grain.....	10.00	....	3.00
Columbia Bone and Potash Mixture.....	10.00	....	2.00
Columbia C. S. M. Special.....	9.00	2.27	2.00
Parrish's Special	9.00	2.06	5.00
Roanoke Ammoniated Guano	9.00	1.65	3.00
Carolina Soluble Guano	9.00	1.65	1.00
Columbia Grain Guano	9.00	.82	3.00
Columbia Special 1-9-2 Guano.....	9.00	.82	2.00
Tobacco King	8.00	3.30	5.00
Pelican Ammoniated Guano	8.00	3.30	4.00
Columbia Special Truck Guano.....	8.00	3.30	4.00
Trojan Tobacco Guano	8.00	3.30	4.00
Columbia Special 4-8-3.....	8.00	3.30	3.00
Columbia 8-3-4 Special Guano.....	8.00	2.47	4.00
Olympia Cotton Guano	8.00	2.47	3.00
Hyco Tobacco Guano	8.00	2.47	3.00
Our Best Meal Guano	8.00	2.47	3.00
Royal Tobacco Fertilizer	8.00	2.06	3.00
Columbia Special Tobacco Guano	8.00	2.06	2.00
Yelverton Bros.' Plant Food for Tobacco.....	8.00	2.00	5.00
Columbia 8-2-5 Tobacco Special	8.00	1.65	5.00
Columbia Fish Phosphate and Potash.....	8.00	1.65	3.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Columbia Soluble Guano for Tobacco.....	8.00	1.65	2.00
Columbia Special Wheat Fertilizer	8.00	1.65	2.00
Columbia Soluble Guano	8.00	1.65	2.00
Spinola Peanut Grower	8.00	1.02	4.00
Columbia 8 and 4 Bone and Potash Mixture..	8.00	....	4.00
Columbia Special 7 Per Cent Truck Guano...	7.00	5.77	7.00
Columbia Potato Guano	7.00	4.12	5.00
Crown Brand Peanut Guano	7.00	....	5.00
Columbia Side Dresser	4.00	8.22	4.00
Columbia Ground Fish Scrap	4.00	8.22	....
Columbia Special Top Dresser	4.00	6.18	2.50
Nitrate of Soda .....	....	15.22	....
Columbia Top Dresser .....	....	7.42	3.00
Sulphate of Potash .....	....	....	48.00
Muriate of Potash .....	....	....	48.00
Genuine German Kainit .....	....	....	12.00

*Cumberland Phosphate Co., Portland, Me., and
Charleston, S. C.—*

Standard Cumberland Bone Superphosphate of Lime	9.00	1.85	1.00
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The Coe-Mortimer Co., Charleston, S. C.—

Gen. Key—Tree Brand Thomas Phosphate, Total	18.00		
Gen. Key—Tree Brand Thomas Phosphate, Total	17.50	....	....
Coe-Mortimer Co.'s Dissolved Bone	16.00	....	....
Coe-Mortimer Co.'s Dissolved Bone	14.00	....	....
Coe-Mortimer Co.'s Level Best	10.00	3.29	4.00
Coe-Mortimer Co.'s Progressive Farmer	10.00	2.47	3.00
Coe-Mortimer Co.'s Bone and Potash	10.00	....	4.00
Coe-Mortimer Co.'s Bone and Potash	10.00	....	2.00
Coe-Mortimer Co.'s Corn Club	9.25	2.05	2.00
Carolina Special	9.00	2.47	3.00
Coe-Mortimer Co.'s Excelsior	9.00	2.05	4.00
Coe-Mortimer Co.'s M. H. G.	9.00	1.65	3.00
Knickerbocker Standard	9.00	1.65	2.00
Coe-Mortimer Co.'s Tar Heel	9.00	.82	3.00
Coe-Mortimer Co.'s Special Formula.....	8.50	1.65	2.00
Harper's Tobacco Guano	8.00	4.11	9.00
E. Frank Co.'s Extra High Grade.....	8.00	4.11	7.00
Marcoc Guano	8.00	3.29	4.00
C. M. C.'s Tobacco Grower.....	8.00	3.28	4.00
Coe-Mortimer Co.'s Tobacco Fertilizer.....	8.00	2.47	6.00
Coe-Mortimer Co.'s Tobacco Fertilizer.....	8.00	2.47	5.00
Coe-Mortimer Co.'s Tobacco Fertilizer.....	8.00	2.47	4.00
C. M. C.'s Tobacco Special.....	8.00	2.47	3.00
Darlington Guano	8.00	2.47	3.00
Coe-Mortimer Co.'s Cotton and Corn.....	8.00	2.05	3.00
Coe-Mortimer Co.'s Straight Goods	8.00	1.65	3.00
Mortimer's High Grade	7.00	4.11	5.00
Imported Ground Fish	6.87	9.27	11.25
High Grade Tankage	6.80	9.65	11.75
High Grade Tankage	6.80	7.62	9.25
Coe-Mortimer Co.'s Top Dresser.....	4.00	6.17	2.50
Nitrate of Soda .....	....	14.99	18.23
Nitrate of Soda .....	....	14.83	....

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
H. G. Dried Blood.....		14.00	17.00
H. G. Dried Blood.....		13.59	16.50
Muriate of Potash			49.00
Sulphate of Potash			49.00
Muriate Mixture			20.00
Genuine German Kainit			12.00

Cooper Guano Co., Wilmington, N. C.—

Cooper's 16 Per Cent Acid Phosphate.....	16.00		
Cooper's 14 Per Cent Acid Phosphate.....	14.00	....	....
Cooper's Grain Producer	10.00	....	4.00
Cooper's Grain Grower	10.00	....	2.00
Cooper's Recorder	9.00	1.65	2.00
Cooper's Kite	8.00	4.11	7.00
Cooper's High Grade Tobacco Special.....	8.00	3.29	4.00
Cooper's Helmar	8.00	3.29	4.00
Cooper's Horto C. S. M.	8.00	3.29	4.00
Cooper's Tobacco Special	8.00	3.00	7.50
Cooper's Chadbourn Trucker	8.00	2.47	10.00
Cooper's Lenox	8.00	2.47	3.00
Cooper's Sunset C. S. M.	8.00	2.47	3.00
Cooper's Clifford	8.00	2.47	3.00
Cooper's Swamp Fox	8.00	2.47	2.50
Cooper's Bunker Hill	8.00	2.06	3.00
Cooper's Crusoe	8.00	2.06	2.00
Cooper's Potato	8.00	1.65	10.00
Cooper's Bald Head Island	8.00	1.65	2.00
Cooper's Reward C. S. M.	8.00	1.65	2.00
Cooper's Waccamaw	8.00	1.65	2.00
Cooper's Sterling Complete	8.00	1.65	2.00
Cooper's Peanut Bouncer	8.00	.82	4.00
Cooper's Finis	7.00	4.11	5.00
Cooper's Top Dresser	4.00	10.00	4.00
Fish Scrap .....	....	10.00	....
Cooper's Evergreen Top Dresser .....	....	7.41	3.00
Kainit .....	....	....	12.00

Craven Chemical Co., New Bern, N. C.—

Panama 16 Per Cent Phosphate.....	16.00	....	....
Jewel Acid Phosphate	14.00	....	....
Turkey Trot Bone and Potash.....	12.00	....	6.00
Herring's Bone and Potash.....	12.00	....	5.00
Craven H. G. Bone and Potash.....	12.00	....	4.00
Foy's High Grade Bone and Potash Mixture..	10.00	....	6.00
Craven Grain Compound	10.00	....	4.00
Trent Bone and Potash.....	10.00	....	2.00
Halifax Guano	9.00	2.47	3.00
Prolix 9-2-3 Special Guano	9.00	1.65	3.00
Hanover Standard Guano	8.00	3.29	4.00
Currituck Sweet Potato Guano.....	8.00	2.47	6.00
Craven Chemical Co.'s Standard Tobacco Guano	8.00	2.47	6.00
Hart's Special Tobacco Grower.....	8.00	2.47	3.00
Duplin Tobacco Guano	8.00	2.47	3.00
Gaston High Grade Fertilizer.....	8.00	2.47	3.00
C. E. Foy High Grade Guano.....	8.00	2.47	3.00
Marvel Great Crop Grower.....	8.00	2.06	3.00
Elite Cotton Guano	8.00	1.65	2.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Pantego Potato Guano	7.00	4.12	7.00
Neuse Truck Grower	6.00	4.94	6.00
Craven Chemical Co.'s Truck Guano, 5-10-21½	5.00	8.24	2.50
Craven Chemical Co.'s Top Dresser A	4.00	8.24	4.00
Craven Chemical Co.'s Top Dresser B	4.00	6.18	2.50
Craven Chemical Co.'s Top Dresser C .....	....	7.41	3.00
Genuine German Kainit .....	....	....	12.00

William H. Camp, Petersburg, Va.—

Bone Meal	Total	22.50	3.80	....
Camp's Acid Phosphate		16.00	....	....
Camp's Acid Phosphate		14.00	....	....
Camp's Shepherd Brand Bone and Potash....		10.00	....	4.00
Camp's Yellow Head Chemicals		8.00	2.87	7.50
Camp's Special for Tobacco		8.00	2.46	3.00
Camp's Red Head Chemicals		8.00	2.25	2.00
Camp's Lion and Monkey		8.00	1.65	2.00
Cat and Rat Peanut Grower.....		8.00	1.00	4.00
Victory Corn Grower		8.00	1.00	2.00
Camp's Shepherd Brand Bone and Potash...		8.00	....	5.00
Camp's Green Head Chemicals		7.00	6.15	10.00
Camp's Above All		6.00	5.75	5.00
Camp's Fertilizer		6.00	4.95	6.00
Nitrate of Soda .....		....	14.75	....
Muriate of Potash .....		....	....	48.00
German Kainit .....		....	....	12.00

Clayton Oil Mill, Clayton, N. C.—

C. O. M. 16 Per Cent Acid Phosphate.....	16.00	....	....
C. O. M. High Grade Bone and Potash.....	12.00	....	5.00
C. O. M. Wheat Compound	10.00	2.05	4.50
C. O. M. Bone and Potash	10.00	....	5.00
Austin's Special	9.00	2.47	3.00
Way side Special	9.00	1.65	4.00
C. W. H. Special	8.00	4.10	5.00
C. O. M. Cotton Grower.....	8.00	3.30	4.00
Clayton Guano	8.00	2.47	3.00
Clayton Special Tobacco Grower.....	8.00	2.47	3.00
Planters' Favorite	8.00	2.47	3.00
Cotton Queen	8.00	1.65	2.00
Summer Queen	8.00	1.65	2.00
C. O. M. Top Dresser.....	3.00	7.75	2.00
H. and W. D. Climax Top Dresser.....	....	12.75	....
Perfection Top Dresser .....	....	9.85	4.00
C. O. M. German Kainit.....	....	....	12.00

Chatham Oil and Fertilizer Co., Pittsboro, N. C.—

C. O. & F. Co. Acid Phosphate.....	16.00		
C. O. & F. Co. Acid Phosphate.....	14.00	....	....
C. O. & F. Co. Bone and Potash.....	10.00	....	5.00
C. O. & F. Co. Bone and Potash.....	10.00	....	2.00
Chatham Corn Grower	9.00	1.23	3.00
High Land Tobacco Grower.....	8.00	2.47	3.00
Pride of Chatham	8.00	2.47	3.00
London's Special	8.00	2.47	3.00
Chatham Cotton Grower	8.00	1.65	2.00
C. O. & F. Co. German Kainit.....	....	....	12.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
<i>Cotton States Fertilizer Works, Atlanta, Ga., Savannah, Ga.—</i>			
Cotton States Potash Acid H. G.	16.00	....	....
Cotton States Potash Acid H. G.	14.00	....	....
Cotton States Potash Acid H. G.	13.00	....	4.00
Cotton States Cotton and Corn Fertilizer H. G.	10.00	3.29	4.00
Cotton States Cotton and Corn Fertilizer H. G.	10.00	2.47	3.00
Cotton States Cotton and Corn Fertilizer H. G.	10.00	1.65	4.00
Cotton States Cotton and Corn Fertilizer H. G.	10.00	1.65	2.00
Cotton States Cotton-seed Meal Compound H. G.	10.00	1.65	2.00
Cotton States Cotton and Corn Fertilizer S. G.	10.00	.82	3.00
Cotton States Potash Acid H. G.	10.00	....	4.00
Cotton States Potash Acid S. G.	10.00	....	2.00
Cotton States Cotton and Corn Fertilizer H. G.	9.00	2.47	3.00
Cotton States Cotton and Corn Fertilizer H. G.	9.00	1.65	3.00
Cotton States Cotton and Corn Fertilizer H. G.	8.00	1.65	5.00
Cotton States Cotton and Corn Fertilizer S. G.	8.00	1.65	2.00
Cotton States Potash Acid S. G.	8.00	....	4.00
Cotton States Nitrate of Soda.....	....	14.82	....
Cotton States Muriate of Potash.....	....	....	50.00
Cotton States German Kainit .....	....	....	12.00
<i>Catawba Fertilizer Co., Lancaster, S. C.—</i>			
Catawba High Grade Acid Phosphate.....	16.00	....	....
Catawba High Grade Acid Phosphate.....	14.00	....	....
Catawba Acid and Potash.....	12.00	....	5.00
Catawba Acid and Potash.....	12.00	....	4.00
Catawba Special	10.00	3.29	4.00
Catawba Farmers' King	10.00	1.65	5.00
Catawba Climax	10.00	1.65	2.00
Catawba Preference	10.00	1.65	2.00
Catawba Grain King.....	10.00	.82	4.00
Catawba Acid and Potash.....	10.00	....	4.00
Catawba Acid and Potash.....	10.00	....	2.00
Catawba Gold Medal	9.00	2.47	7.00
Catawba Farmers' Special.....	9.00	2.47	2.00
Catawba Farmers' Union.....	9.00	1.85	4.00
Catawba Economizer	9.00	1.65	2.00
Catawba Dixie	8.85	1.65	2.00
Catawba Old Hickory	8.00	3.29	6.00
Catawba Reliable	8.00	3.29	4.00
Catawba Electric	8.00	3.29	4.00
Catawba Farmers' Choice.....	8.00	2.47	5.00
Catawba Red Rose.....	8.00	2.47	3.00
Catawba Peerless	8.00	2.47	3.00
Catawba Red Star.....	8.00	2.47	3.00
Catawba Champion	8.00	2.05	3.00
Catawba Standard	8.00	2.05	2.00
Catawba Eclipse	8.00	1.65	2.00
Catawba Acid and Potash.....	8.00	....	4.00
Catawba Cotton Producer.....	6.00	4.93	5.00
Catawba Top Dresser.....	4.00	6.16	2.50
Catawba Superior	4.00	5.75	7.00
Catawba Excelsior	4.00	5.75	4.00
Catawba Nitrate of Soda.....	....	15.00	....
Catawba Muriate of Potash.....	....	....	48.00
Catawba Kainit .....	....	....	12.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
<i>Cowell, Swann & McCotter Co., Bayboro, N. C.—</i>			
16 Per Cent Acid Phosphate.....	16.00	....	....
Bone Phosphate	14.00	....	....
Standard Cotton Grower.....	8.00	3.30	3.00
Champion Guano	8.00	2.47	3.00
Cowell's Great Tobacco Grower.....	8.00	2.47	3.00
Special Tobacco Guano.....	8.00	2.47	3.00
Special Cotton Guano.....	8.00	2.47	3.00
Quick Grower Guano.....	8.00	2.06	3.00
Rust Proof Cotton Guano.....	8.00	1.65	3.00
Crop Guano	8.00	1.65	2.00
Great Cabbage and Potato Guano.....	7.00	5.77	7.00
High Grade Truck Guano.....	7.00	4.12	5.00

Carolina Union Fertilizer Co., Norfolk, Va.—

Carolina Union Raw Bone Meal.....Total	21.00	3.71	
Carolina Union 16 Per Cent.....	16.00	....	....
Carolina Union 14 Per Cent.....	14.00	....	....
Carolina Union 10-5.....	10.00	....	5.00
Carolina Union 10-4.....	10.00	....	4.00
Carolina Union 10-2.....	10.00	....	2.00
Carolina Union 2¾-9-2.....	9.00	2.26	2.00
Carolina Union 2¼-9-4 Guano.....	9.00	1.85	4.00
Carolina Union 4-8-6.....	8.00	3.30	6.00
Carolina Union 4-8-4.....	8.00	3.30	4.00
Carolina Union 3-8-10.....	8.00	2.47	10.00
Carolina Union 3-8-5.....	8.00	2.47	5.00
Carolina Union 3-8-3.....	8.00	2.47	3.00
Carolina Union 2½-8-3.....	8.00	2.06	3.00
Carolina Union 2-8-4.....	8.00	1.65	4.00
Carolina Union 2-8-2.....	8.00	1.65	2.00
Carolina Union 8-4.....	8.00	....	4.00
Carolina Union 5-7-5.....	7.00	4.12	5.00
Carolina Union 4-6-4.....	6.00	3.30	4.00
Carolina Union Top Dresser.....	2.00	8.25	2.00
Nitrate of Soda.....	....	14.85	....
Muriate of Potash.....	....	....	50.00
Genuine German Kainit.....	....	....	12.00

Chickamauga Fertilizer Works, Atlanta, Ga.—

Chickamauga High Grade Dissolved Bone, No. 16	16.00		
Chickamauga High Grade Dissolved Bone...	14.00	....	....
Chickamauga 13-4	13.00	....	4.00
Chickamauga Potash Special, No. 4.....	12.00	....	4.00
Chickamauga Potash Special.....	12.00	....	2.00
Chickamauga Dissolved Bone.....	12.00	....	....
Chickamauga Very Best Extra H. G. Guano..	10.00	3.30	4.00
Ben Hur H. G. Guano.....	10.00	2.47	3.00
Special Potato Compound.....	10.00	1.65	4.00
Special Wheat Compound.....	10.00	1.65	4.00
Special Vegetable Compound.....	10.00	1.65	4.00
Special Corn Compound.....	10.00	1.65	4.00
Chickamauga High Grade Fertilizer.....	10.00	1.65	2.00
Chickamauga High Grade Plant Food (C. S. M.)	10.00	1.65	2.00
Chickamauga Fish Scrap Guano.....	10.00	1.65	2.00
Chickamauga Wheat Special.....	10.00	.82	3.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Chickamauga Corn Special.....	10.00	.82	3.00
Chickamauga Cotton Special.....	10.00	.82	3.00
Chickamauga Wheat and Corn Grower, No. 8.	10.00	....	8.00
Chickamauga Wheat and Corn Grower, No. 6.	10.00	....	6.00
Chickamauga Wheat and Corn Grower, No. 5.	10.00	....	5.00
Chickamauga Wheat and Corn Grower.....	10.00	....	4.00
Chickamauga Bone and Potash.....	10.00	....	2.00
Chickamauga Blood, Bone and Tankage Guano	9.00	.82	2.00
Special Potato Grower.....	8.00	1.65	6.00
Special Wheat Grower.....	8.00	1.65	6.00
Special Vegetable Grower.....	8.00	1.65	6.00
Special Corn Grower.....	8.00	1.65	6.00
Chickamauga Complete Fertilizer (C. S. M.)..	8.00	1.65	2.00
Chickamauga Standard Corn Grower.....	8.00	1.65	2.00
Chickamauga Standard Wheat Grower.....	8.00	1.65	2.00
Georgia Home Guano.....	8.00	1.65	2.00
Chickamauga Alkaline Bone, No. 6.....	8.00	....	6.00
Chickamauga Alkaline Bone, No. 5.....	8.00	....	5.00
Chickamauga Alkaline Bone.....	8.00	....	4.00
Nitrate of Soda.....	....	15.00	....
Muriate of Potash.....	....	....	50.00

Canton Fertilizer Co., Canton, Ga.—

Dissolved Bone.....	16.00	....	....
Dissolved Bone.....	14.00	....	....
R. T. Jones Extra H. G.	10.00	2.47	3.00
Elberta Special.....	10.00	2.06	7.00
North Georgia High Grade.....	10.00	2.06	3.00
Ten Two Four.....	10.00	1.65	4.00
Southern King High Grade.....	10.00	1.65	2.00
Fish High Grade.....	10.00	1.65	2.00
Orange High Grade.....	10.00	1.65	2.00
Jonco High Grade.....	10.00	1.65	2.00
Quickstep Wheat and Grain Grower.....	10.00	.82	3.00
Special Potash Mixture.....	10.00	....	4.00
Jonco Standard Grade.....	8.00	1.65	2.00
Dissolved Bone and Potash.....	8.00	....	4.00
Jones' Premium Special.....	7.50	4.00	5.50
Nitrate of Soda.....	....	15.00	....
Muriate of Potash.....	....	....	48.00

The Chesapeake Chemical Co., Baltimore, Md.—

C. C. Co.'s Dissolved Phosphate.....	16.00	....	....
C. C. Co.'s Dissolved Phosphate.....	14.00	....	....
C. C. Co.'s Reliable Phosphate.....	10.00	....	4.00
C. C. Co.'s Celebrated Mixture.....	10.00	....	2.00
C. C. Co.'s Rapid Trucker.....	8.00	3.28	7.00
C. C. Co.'s High Grade Guano.....	8.00	3.28	4.00
C. C. Co.'s Excelsior Fertilizer	8.00	2.46	4.00
C. C. Co.'s Fish Guano.....	8.00	2.46	3.00
C. C. Co.'s Ammoniated Phosphate.....	8.00	1.64	3.00
C. C. Co.'s National Crop Grower.....	8.00	1.64	2.00
C. C. Co.'s Keystone Phosphate.....	7.00	3.28	5.00
C. C. Co.'s Potato Compound.....	6.00	4.10	5.00
C. C. Co.'s Prolific Top Dresser.....	....	7.51	3.50
C. C. Co.'s German Kainit.....	....	....	12.40

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
<i>Combahce Fertilizer Co., Charleston, S. C.—</i>			
C. F. Co. Dissolved Bone.....	16.00	....	....
C. F. Co. Dissolved Bone.....	14.00	....	....
C. F. Pure Dissolved Bone.....	13.00	....	....
C. F. Co. Melon Fertilizer.....	10.00	3.30	5.00
C. F. Co. Cantaloupe Fertilizer.....	10.00	2.47	10.00
Fish and Blood.....	9.00	1.65	3.00
C. F. Co. K. M. S.	8.00	3.30	4.00
C. F. Co. H. G. Cotton Fertilizer.....	8.00	2.47	3.00
Fish Mixture	8.00	2.47	3.00
C. F. Co. Special Mixture.....	8.00	2.06	1.50
C. F. Co. Cotton and Corn Compound.....	8.00	1.65	2.00
Nitrate of Soda.....	....	14.84	....
Muriate of Potash.....	....	....	48.00
Kainit .....	....	....	12.00

*Caraleigh Phosphate and Fertilizer Works,
Raleigh, N. C.—*

Raw Bone Meal	Total	20.00	3.70	....
16 Per Cent Acid Phosphate.....		16.00	....	....
Climax Dissolved Bone		14.00	....	....
Sterling Acid Phosphate		13.00	....	....
Staple Acid Phosphate		12.00	....	....
Horne & Son's High Grade Bone and Potash.		11.00	....	5.00
Special Bone and Potash Mixture.....		10.00	....	4.00
Morris & Scarboro's Special Bone and Potash.		10.00	....	3.00
Electric Bone and Potash Mixture.....		10.00	....	2.00
Pacific Tobacco and Cotton Grower.....		9.00	2.26	2.00
Rhankatte Special Tobacco Guano.....		8.00	3.30	6.00
Special S-4-4		8.00	3.30	4.00
Caraleigh Meal and Tankage Mixture.....		8.00	3.30	4.00
Horne's Best		8.00	2.47	3.00
Eclipse Ammoniated Guano		8.00	2.47	3.00
Planter's Pride		8.00	2.06	3.00
Caraleigh Special Tobacco Guano.....		8.00	2.06	3.00
Eli Ammoniated Fertilizer		8.00	1.65	2.00
Crown Ammoniated Guano		8.00	1.65	2.00
Comet Guano		8.00	.82	3.00
Buncombe Corn Grower		8.00	....	4.00
Buncombe Wheat Grower		8.00	....	4.00
Caraleigh Top Dresser		3.00	8.23	4.00
Nitrate of Soda .....		....	15.63	....
Kanona Tankage .....		....	9.04	....
Sulphate of Potash .....		....	....	50.00
Muriate of Potash .....		....	....	50.00
Genuine German Kainit .....		....	....	12.00

Central Phosphate Co., Mount Pleasant, Tenn.—

Tennessee Phosphate	Total	32.00	....	....
Tennessee Phosphate.....	Total	28.00	....	....

Cheraw Fertilizer Co., Cheraw, S. C.—

Cheraw Perfection Acid Phosphate.....	16.00	....	....
Cheraw High Grade Acid Phosphate.....	14.00	....	....
Cheraw Standard Acid Phosphate.....	13.00	....	....
Farmers' Mixture	8.00	3.29	4.00
Cheraw Perfection	8.00	3.29	4.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Cheraw Special	8.00	3.29	4.00
Cheraw High Grade	8.00	2.47	3.00
Cheraw Excelsior	8.00	2.47	3.00
Cheraw Fish Mixture	7.00	3.29	3.00
Cheraw Complete	7.00	2.47	4.00
Farmers Special Mixture	6.00	2.47	2.50
Nitrate of Soda .....	....	14.80	....
Muriate of Potash.....	....	....	48.00
German Kainit .....	....	....	12.00

Congaree Fertilizer Co., Columbia, S. C.—

Congaree Special Guano	10.00	3.00	4.00
Superphosphate and Potash.....	10.00	....	2.00
Congaree Special Guano	8.00	3.00	4.00
Special Meal Mixture	8.00	3.00	3.00
Top Dresser	7.00	5.00	5.00
Congaree Special Guano.....	7.00	3.00	5.00
Top Dresser	4.00	7.50	2.50
Nitrate of Soda .....	....	18.00	....

Coweta Fertilizer Co., Norfolk, Va.—

Coweta 16 Per Cent Acid Phosphate.....	16.00		
Coweta High Grade Acid Phosphate.....	14.00	....	....
Coweta Acid Phosphate	13.00	....	....
Coweta Fish Guano	10.00	1.65	2.00
Coweta Standard Bone and Potash.....	10.00	....	4.00
Coweta Dissolved Bone and Potash.....	10.00	....	2.00
Coweta Nonpareil Grower	9.00	.83	3.00
Coweta Animal Bone	8.00	3.29	4.00
Sea Bird Standard Guano	8.00	2.47	3.00
Coweta Perfection Tobacco Grower.....	8.00	2.47	3.00
Coweta Royal Guano	8.00	2.06	3.00
Coweta Beef, Blood and Bone.....	8.00	2.06	1.00
Coweta Success Guano	8.00	1.65	2.00
Coweta Special Bone and Potash.....	8.00	....	4.00
Coweta Standard Truck Guano.....	6.00	4.12	7.00
Coweta Top Dresser.....	4.00	8.25	4.00
Nitrate of Soda .....	....	14.83	....
Cotton-seed Meal .....	....	6.17	....
Muriate of Potash .....	....	....	49.00
Genuine German Kainit.....	....	....	12.00

Carolina Warehouse Co., Salisbury, N. C.—

Farmers' Union Ground Phosphate Rock, Total	28.00	....	....
Farmers' Union 21.5-4.5 Bone Meal.....Total	21.50	3.70	....
Farmers' Union 20-12 Bone and Potash.....	20.00	....	12.00
Farmers' Union 20-8 Bone and Potash.....	20.00	....	8.00
Thomas Phosphate (Anchor Brand)....Total	17.00	....	....
Farmers' Union 16 Per Cent Acid Phosphate.	16.00	....	....
Farmers' Union 14 Per Cent Acid Phosphate.	14.00	....	....
Farmers' Union Dissolved Animal Bone.....	13.00	2.06	....
Farmers' Union 13 Per Cent Acid Phosphate.	13.00	....	....
Farmers' Union 12-6 Bone and Potash.....	12.00	....	6.00
Farmers' Union 12-5 Bone and Potash.....	12.00	....	5.00
Farmers' Union 12-4 Bone and Potash.....	12.00	....	4.00
Farmers' Union 12-3 Bone and Potash.....	12.00	....	3.00
Farmers' Union 12 Per Cent Acid Phosphate.	12.00	....	....
Farmers' Union 11-5 Bone and Potash.....	11.00	....	5.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Farmers' Union 10-4-4 Guano.....	10.00	3.29	4.00
Farmers' Union 10-3-3 Guano.....	10.00	2.47	3.00
Farmers' Union 10-2-2 Guano	10.00	1.65	2.00
Farmers' Union 10-6 Bone and Potash.....	10.00	....	6.00
Farmers' Union 10-5 Bone and Potash.....	10.00	....	5.00
Farmers' Union 10-4 Bone and Potash.....	10.00	....	4.00
Farmers' Union 10-3 Bone and Potash.....	10.00	....	3.00
Farmers' Union 10-2 Bone and Potash.....	10.00	....	2.00
Farmers' Union 9-3-3 Guano.....	9.00	2.47	3.00
Farmers' Union 9-2 $\frac{3}{4}$ -2 Guano.....	9.00	2.26	2.00
Farmers' Union 9-2 $\frac{1}{4}$ -4 Guano.....	9.00	1.85	4.00
Farmers' Union 9-2-3 Guano	9.00	1.65	3.00
Farmers' Union 9-1-3 Guano.....	9.00	.82	3.00
Farmers' Union 8-4 $\frac{1}{2}$ -7 Guano.....	8.00	3.71	7.00
Farmers' Union 8-4 $\frac{1}{2}$ -7 Tobacco Guano.....	8.00	3.71	7.00
Farmers' Union 8-4-6 Guano.....	8.00	3.29	6.00
Farmers' Union 8-4-6 Tobacco Guano.....	8.00	3.29	6.00
Farmers' Union 8-4-4 Guano.....	8.00	3.29	4.00
Farmers' Union 8-3-5 Tobacco Guano.....	8.00	2.47	5.00
Farmers' Union 8-3-5 Guano.....	8.00	2.47	5.00
Farmers' Union 8-3-3 Guano.....	8.00	2.47	3.00
Farmers' Union 8-3-3 Tobacco Guano.....	8.00	2.47	3.00
Farmers' Union 8-2-5-3 Guano.....	8.00	2.06	3.00
Farmers' Union 8-2-5-3 Tobacco Guano.....	8.00	2.06	3.00
Farmers' Union 8-2-5-2 Guano.....	8.00	2.06	2.00
Farmers' Union 8-2-5-2 Tobacco Guano.....	8.00	2.06	2.00
Farmers' Union 8-2-10 Guano.....	8.00	1.65	10.00
Farmers' Union 8-2-3 Guano.....	8.00	1.65	3.00
Farmers' Union 8-2-2 Guano	8.00	1.65	2.00
Farmers' Union 8-2-2 Tobacco Guano.....	8.00	1.65	2.00
Farmers' Union 8-1-4 Guano.....	8.00	.82	4.00
Farmers' Union 8-1-3 Guano	8.00	.82	3.00
Farmers' Union 8-5 Bone and Potash.....	8.00	....	5.00
Farmers' Union 8-4 Bone and Potash.....	8.00	....	4.00
Farmers' Union 7-7-7 Guano	7.00	5.76	7.00
Farmers' Union 7-5-8 Guano	7.00	4.12	8.00
Farmers' Union 7-5-5 Guano	7.00	4.12	5.00
Farmers' Union 7-4-5 Guano	7.00	3.29	5.00
Farmers' Union 4-7.5-2 Top Dresser	4.00	6.17	2.00
Farmers' Union Tankage	2.00	8.24	....
Farmers' Union Nitrate of Soda.....	....	15.00	....
Farmers' Union Dried Blood .....	....	13.00	....
Farmers' Union Fish Scrap .....	....	8.24	....
Farmers' Union Carolite Top Dresser.....	....	7.40	3.00
Farmers' Union Muriate of Potash.....	....	....	50.00
Farmers' Union Sulphate of Potash.....	....	....	49.00
Farmers' Union 12 Per Cent Kainit.....	....	....	12.00

Contentnea Guano Co., Wilson, N. C.—

High Grade 16 Per Cent Acid.....	16.00	....	....
Contentnea 14 Per Cent Acid.....	14.00	....	....
Bartholomew's Cotton Special.....	10.00	2.47	7.00
"Corn Club" Special	10.00	.82	5.00
Bone and Potash Mixture, No. 3.....	10.00	....	5.00
Bone and Potash Mixture, No. 2.....	10.00	....	4.00
Bone and Potash Mixture, No. 1.....	10.00	....	2.00
Contentnea Cotton Formula.....	9.00	2.25	2.00
Bartholomew's Cotton Grower	9.00	1.85	5.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
S-4½-7 for Tobacco	8.00	3.70	7.00
S-4½-7 for Cotton	8.00	3.70	7.00
Climax High Grade	8.00	3.30	4.00
High Grade Tobacco Grower.....	8.00	2.90	5.00
Howard & Williams' Cotton Special.....	8.00	2.88	5.00
Government Formula, No. 1.....	8.00	2.47	10.00
Bartholomew's Tobacco Special	8.00	2.47	7.00
Government Formula, No. 2.....	8.00	2.47	7.00
Victor Fertilizer for Tobacco.....	8.00	2.47	5.00
Farmers' Favorite Formula	8.00	2.47	4.00
Pick Leaf Tobacco Fertilizer.....	8.00	2.47	3.00
Top Notch Fertilizer	8.00	2.47	3.00
Matchless Cotton Grower	8.00	2.47	3.00
Contentnea Cotton Grower	8.00	2.47	2.50
Cotton Special	8.00	2.05	5.00
Contentnea Tobacco Special	8.00	2.05	3.00
Bragg Cotton Grower.....	8.00	2.05	3.00
Blood and Bone Cotton Compound.....	8.00	1.65	2.00
Bragg Corn Grower	8.00	.82	5.00
Special Formula for Truck.....	7.00	4.06	7.00
High Grade Special	6.00	5.75	5.00
Contentnea Corn Special	5.00	1.65	5.00
High Grade Top Dresser.....	4.00	8.25	4.00
Special Top Dresser	4.00	6.60	4.00
Moore's Special	4.00	2.65	4.50
Contentnea Top Dresser	3.00	8.25	5.00
Nitrate of Soda.....	....	14.82	....
Muriate of Potash.....	....	....	50.00
Sulphate of Potash.....	....	....	50.00
Manure Salts .....	....	....	20.00
H. G. 16 Per Cent German Kainit.....	....	....	16.00
German Kainit .....	....	....	12.00

C. E. Davis Packing Co., Reedville, Va.—

Upton's Trucker	8.00	4.12	5.00
Gilliam's 7 Per Cent Special.....	6.00	5.77	6.00
Upton's 7 Per Cent	6.00	5.77	5.00
Gilliam's Special 5 Per Cent.....	6.00	4.12	8.00
Upton's Special	6.00	4.12	7.00

C. P. Dey, Beaufort, N. C.—

Ground Fish Scrap	7.00	8.23	
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Dixie Guano Co., Durham, N. C.—

Dixie 16 Per Cent Acid Phosphate.....	16.00		
Dixie 14 Per Cent Acid Phosphate.....	14.00		
Dixie Champion for Wheat and Corn.....	10.50	....	1.50
Jeff Davis Special	9.00	2.26	2.00
Dixie Star Ammoniated.....	9.00	1.65	2.00
Dixie Corn Fertilizer	9.00	.82	3.00
Radium Brand Guano	8.00	3.28	5.00
Dixie Tobacco Fertilizer.....	8.00	2.46	3.00
Carolina Special Ammoniated	8.00	2.46	3.00
Sulky Plow Brand Guano.....	8.00	2.46	2.00
Battle's Blood and Bone Fertilizer.....	8.00	2.05	3.00
Niagara Soluble Bone.....	8.00	2.05	2.00
Dixie Cotton Fertilizer	8.00	1.65	2.00
Old Plantation Superphosphate	8.00	1.65	2.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Nitrate of Soda		14.82	....
Muriate of Potash			48.00
Sulphate of Potash			48.00
Kainit			12.00

The Dunn Oil Mill Co., Dunn, N. C.—

Uncle Zeb	9.50	2.75	5.00
Cape Fear Leader.....	8.00	4.00	4.00
Bull of the Field.....	8.00	3.00	4.00
Dunn Hustler	8.00	3.00	3.00
Sampson Cotton Grower	8.00	2.00	2.00

Dixie Guano Co., Inc., Suffolk, Va.—

Dixie Acid Phosphate	16.00	....	....
Dixie Acid Phosphate	14.00	....	....
Dixie Goodluck Brand	12.00	1.00	6.00
Dixie Alkaline Bone and Potash.....	11.00	....	2.00
Dixie Monticello Brand	10.00	1.00	2.00
Dixie Alkaline Bone and Potash.....	10.00	....	4.00
Dixie Alkaline Bone and Potash.....	10.00	....	2.00
Dixie's Best	8.00	4.11	7.00
Dixie 8-4-4 Guano	8.00	3.29	4.00
Dixie Maximum Brand	8.00	2.47	4.00
Dixie High Grade	8.00	2.47	3.00
Dixie 8-2-5 Guano	8.00	1.65	5.00
Dixie Standard Guano	8.00	1.65	2.00
Dixie Bonus Brand	8.00	1.65	2.00
Dixie Jumbo Peanut Grower.....	8.00	1.00	4.00
Dixie Corn Grower	8.00	1.00	2.00
Dixie Bone and Potash.....	8.00	....	5.00
Dixie 5 Per Cent Truck.....	7.00	4.11	5.00
Dixie Potato Guano	6.00	5.75	5.00
Dixie 10 Per Cent Top Dresser.....	5.00	8.23	3.00
Dixie 7 Per Cent	5.00	5.66	4.00
"Pierce's Pride"	4.00	6.58	4.00
Dried Blood .....	....	16.50	....
Nitrate of Soda .....	....	15.21	....
Ground Fish .....	....	8.23	....
Cotton-seed Meal .....	....	6.16	....
Dixie Muriate of Potash.....	....	....	48.00
Muriate of Potash .....	....	....	48.00
Dixie Kainit .....	....	....	12.00
Kainit .....	....	....	12.00

Etiwan Fertilizer Co., Charleston, S. C.—

Etiwan 16 Per Cent Acid Phosphate.....	16.00		
Etiwan High Grade Acid Phosphate.....	14.00	....	....
Etiwan Dissolved Bone	13.00	....	....
Diamond Soluble Bone	13.00	....	....
Etiwan Acid Phosphate with Potash.....	11.00	....	1.00
Plow Brand Acid Phosphate with Potash....	11.00	....	1.00
Etiwan Potash Bone	10.00	....	4.00
Etiwan Soluble Bone with Potash.....	10.00	....	3.00
Diamond Soluble Bone with Potash.....	10.00	....	2.00
XX Acid Phosphate with Potash.....	10.00	....	2.00
Etiwan Blood and Bone Guano.....	9.00	2.06	1.00
Plow Brand Raw Bone Superphosphate.....	9.00	2.06	1.00
Etiwan 9-2-3 Per Cent Ammoniated Fertilizer.	9.00	1.65	3.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Plow Brand Ammoniated Dissolved Bone....	9.00	1.65	2.00
Etiwan Superior Cotton Fertilizer.....	8.00	3.30	6.00
Etiwan Special Cotton Fertilizer.....	8.00	3.30	4.00
Plow Brand Special Tobacco Fertilizer.....	8.00	3.30	4.00
Etiwan Cotton Compound	8.00	2.47	3.00
Etiwan High Grade Cotton Fertilizer.....	8.00	2.47	2.00
Etiwan Ammoniated Fertilizer	8.00	1.65	2.00
Plow Brand Ammoniated Fertilizer.....	8.00	1.65	2.00
Etiwan Special Potash Mixture.....	8.00	....	4.00
Nitrate of Soda .....	....	14.82	....
Muriate of Potash .....	....	....	48.00
Genuine German Kainit .....	....	....	12.00

Elmore Gin and Fertilizer Co., Elmore, N. C.—

Elmore Cantaloupe Special	8.00	3.29	7.50
Elmore Standard Fertilizer	8.00	3.29	4.00
Elmore Cotton Fertilizer	8.00	2.47	3.00
Elmore X Fertilizer	6.50	2.47	2.50
Elmore Watermelon Special	5.50	3.29	10.00
Elmore Top Dresser .....	....	8.65	3.50
Elmore Corn Fertilizer .....	....	3.70	2.50

Elba Manufacturing Co., Maxton, N. C.—

16 Per Cent Acid Phosphate.....	16.00	....	....
Elba Melon Grower Fertilizer.....	8.00	4.12	7.00
Elba Hornet's Nest Fertilizer.....	8.00	3.30	5.00
Elba Superior Fertilizer	8.00	3.30	4.00
Elba High Grade Fertilizer.....	8.00	3.30	4.00
Elba Sunrise Fertilizer	8.00	2.47	5.00
Elba Eclipse Fertilizer	8.00	2.47	4.00
John's Cotton Grower Fertilizer.....	8.00	2.47	4.00
Elba Gold Seal Fertilizer.....	8.00	2.47	3.00
Elba Standard Fertilizer	8.00	2.47	3.00
Pate's Cotton Grower Fertilizer.....	7.00	3.30	5.00
Jack's Special Fertilizer	4.00	8.25	4.00
Elba Top Dresser Fertilizer.....	....	7.42	3.00
Muriate Potash .....	....	....	48.00
German Kainit .....	....	....	12.00

Eastern Cotton Oil Co., Hertford, N. C.—

Acid Phosphate	16.00	....	....
Acid Phosphate	14.00	....	....
"Ten-One-Four for Peanuts".....	10.00	.83	4.00
Bone Potash	10.00	....	4.00
Currituck Special for Yellow Sweets.....	8.00	3.29	6.00
Mat White Special	8.00	3.29	4.00
Farmers Sensation for Tobacco.....	8.00	2.47	3.00
It-grows Currituck Yellows	8.00	2.47	3.00
Rain-proof Cotton Grower	8.00	2.47	3.00
Magic Economy	8.00	2.06	3.00
Fish and Blood Mixture.....	8.00	1.65	2.00
Perquimans Favorite	8.00	1.65	2.00
Early Bird	7.00	4.12	5.00
Hertford Truck Grower	6.00	5.77	5.00
Tankage and Fish Substitute, Peruvian Guano for Truck	6.00	4.12	7.00
Nun-such Potato Grower	6.00	4.12	7.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Nitrate of Soda		15.67	....
Fish Scrap		9.00	....
Sulphate of Potash			48.00
Muriate of Potash			48.00
Genuine German Kainit			12.00

Farmers Guano Co., Raleigh, N. C., and Norfolk, Va.—

Raw Bone Meal	Total	20.00	3.70	....
16 Per Cent Acid Phosphate.....		16.00	....	....
14 Per Cent Acid Phosphate.....		14.00	....	....
Farmers Acid Phosphate		13.00	....	....
Special H. G. Bone and Potash.....		11.00	....	5.00
Farmers Grain Grower		10.00	1.03	2.00
Special Bone and Potash Mixture.....		10.00	....	4.00
Century Bone and Potash Mixture.....		10.00	....	2.00
Farmers Meal and Tankage Mixture.....		8.00	3.30	4.00
Farmers Blood and Bone		8.00	3.30	4.00
Big Crop Guano		8.00	2.88	5.00
Money Point Guano		8.00	2.47	3.00
Golden Grade Guano		8.00	2.47	3.00
Toco Tobacco Guano		8.00	2.06	3.00
Farmers Ammoniated Guano		8.00	1.65	2.00
State Standard Guano		8.00	1.65	2.00
Farmers Peanut Guano		8.00	1.03	4.00
Special Bone and Potash.....		8.00	....	4.00
Farmers 7 Per Cent Trucker.....		7.00	5.76	7.00
Farmers Challenge		7.00	4.12	5.00
Farmers Formula		7.00	2.47	3.25
Farmers 6-7-5 Trucker		6.00	5.76	5.00
Farmers Top Dresser		3.00	8.23	4.00
Nitrate of Soda .....		....	15.63	....
Kanona Tankage .....		....	9.04	....
Ground Fish .....		....	8.22	....
Muriate of Potash .....		....	....	50.00
Sulphate of Potash .....		....	....	50.00
Genuine German Kainit .....		....	....	12.00

Farmers Coöperative Fertilizer Co., Inc., Blackstone and Kenbridge, Va.—

F. C. F. Co.'s Raw Bone Meal.....	Total	21.00	3.70	....
Pure Animal Bone	Total	21.00	2.47	....
F. C. F. Co.'s Acid Phosphate.....		16.00	....	....
F. C. F. Co.'s Acid Phosphate.....		14.00	....	....
Jericho Corn Grower		10.00	1.03	....
F. C. F. Co.'s Bone and Potash Compound....		10.00	....	4.00
F. C. F. Co.'s Bone and Potash Compound....		10.00	....	2.00
Walkover for Corn and Peanuts.....		9.00	1.03	1.00
Virginia Special for Tobacco.....		8.00	3.29	2.00
The Meherrin Special for Tobacco.....		8.00	2.47	3.00
Nottoway Special for Tobacco.....		8.00	2.47	2.00
Free State Official Tobacco Guano.....		8.00	2.05	3.00
Pope's Peerless Guano		8.00	1.64	3.00
Paul Jones for Tobacco.....		8.00	1.64	2.00
Farmers Common Sense Guano		8.00	1.27	3.00
Kainit .....		....	....	12.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
<i>Foreign Products Co., Inc., Baltimore, Md., and Wilmington, N. C.—</i>			
Bone Meal	22.00	2.46	....
Ground Thomas Phosphate "Star Brand"....	17.00	....	....
Acid Phosphate	16.00	....	....
Nitrate of Soda .....	....	15.00	....
Ground Blood .....	....	13.98	....
Ground Tankage .....	....	9.05	....
Agricultural Lime 96 Per Cent Carbonate....	....	9.05	....
Ground Fish .....	....	8.22	....
Top Dresser "Star Brand".....	....	7.40	3.00
Muriate of Potash .....	....	....	50.00
Sulphate of Potash .....	....	....	48.00
Kainit .....	....	....	12.00
Prepared Lime .....	....	....	3.00
<i>Farmville Oil and Fertilizer Co., Farmville, N. C.—</i>			
XX High Grade Acid Phosphate.....	16.00	....	....
High Grade Acid Phosphate.....	14.00	....	....
FFF Bone and Potash.....	12.00	....	4.00
Farmville High Grade (C. S. M.).....	10.00	2.47	4.00
Davis's Corn Grower	10.00	.82	5.00
Pitt County Corn Grower	10.00	.82	4.00
Farmville's Favorite Fertilizer	9.00	2.90	5.00
Greene County Special (for tobacco).....	9.00	2.67	5.00
Scientific Cotton Grower	9.00	2.26	2.00
Specific Cotton Grower	9.00	2.26	2.00
East Carolina Cotton Grower	9.00	2.26	2.00
Davis's Special Guano	8.00	3.70	7.00
8-4-5 Tobacco Special	8.00	3.30	5.00
Carolina Chief	8.00	3.30	4.00
Lang's Favorite	8.00	3.30	4.00
Farmville Special	8.00	3.30	4.00
Turnage's Fish Scrap Mixture.....	8.00	3.30	4.00
Harris's Bright Leaf Tobacco Grower.....	8.00	3.30	4.00
Uncle Sam's Tobacco Grower.....	8.00	3.29	3.00
Big Leaf (Tobacco Grower).....	8.00	2.47	7.00
Lewis's 8-3-7 Tobacco Special.....	8.00	2.47	7.00
Sterling for Tobacco	8.00	2.47	5.00
Pollard's Special Formula	8.00	2.47	5.00
Lewis's 8-3-5 Tobacco Special.....	8.00	2.47	5.00
Obelisk	8.00	2.47	4.00
Pride of Pitt	8.00	2.47	4.00
Harris's Special Tobacco Grower	8.00	2.47	3.00
Turnage's Fish Scrap Mixture.....	8.00	2.47	3.00
Congo	8.00	2.47	3.00
Davis's High Grade Tobacco Manure.....	8.00	2.47	3.00
Marlboro Tobacco Grower	8.00	2.47	3.00
Golden Crown	8.00	2.47	3.00
Marlboro Cotton Grower	8.00	2.47	3.00
Pitt County Cotton Grower.....	8.00	2.25	4.50
Chamblee & Sons' Special.....	8.00	2.25	2.00
Cotton King	8.00	2.05	4.00
Perfect Tobacco Guano	8.00	2.05	3.00
Davis's Cotton Grower	8.00	1.65	2.00
Carolina Standard	8.00	1.65	2.00
Farmville Standard (C. S. M.).....	8.00	1.65	2.00
Farmville's Bone Mixture	8.00	1.65	2.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Lewis's Special for Cotton.....	7.00	2.67	4.50
Lang's High Grade Tobacco Manure.....	6.00	2.88	6.00
Evergreen Top Dresser	4.00	8.24	4.00
Second Application	4.00	4.10	6.00
Sulphate of Ammonia .....	....	20.50	....
Nitrate of Soda .....	....	15.00	....
Sulphate of Potash .....	....	....	50.00
Muriate of Potash .....	....	....	48.00
Hard Salts .....	....	....	16.00
Genuine German Kainit .....	....	....	12.00

Fremont Oil Mills, Fremont, N. C.—

16 Per Cent Acid Phosphate.....	16.00	....	....
Fremont High Grade Bone and Potash.....	10.00	....	4.00
F. O. M. Co. 9-3-7.....	9.00	2.47	7.00
Carolina C. S. M. Compound.....	9.00	2.26	2.00
S. H. & Co.'s 8-4-4.....	8.00	3.29	4.00
Fremont High Grade Guano.....	8.00	3.29	4.00
Fremont Oil Mill Co.'s Special Tobacco.....	8.00	2.47	5.00
Nahunta Special	8.00	2.47	3.00
S. H. & Co.'s 8-3-3.....	8.00	2.47	3.00
Square Deal	8.00	2.05	3.00
Up-to-date	8.00	1.65	2.00
F. O. M. Co.'s 6-5-7.....	6.00	4.10	7.00
F. O. M. Co. Top Dresser.....	3.00	7.40	5.00
Nitrate of Soda .....	....	14.85	....
Muriate of Potash .....	....	....	48.00
Sulphate of Potash .....	....	....	48.00
Kainit .....	....	....	12.00

Farmers Cotton Oil Co., Wilson, N. C.—

16 Per Cent Acid Phosphate.....	16.00	....	....
Bonum Acid Phosphate	14.00	....	....
Contentnea Acid Phosphate	13.00	....	....
Washington's Corn Mixture Guano.....	10.00	.82	5.00
Xtra Good Bone and Potash.....	10.00	....	2.00
Whitley's Special Guano	9.00	3.30	4.00
Dean's Special Guano	8.00	3.70	7.00
Regal Tobacco Guano	8.00	2.88	5.00
Newsome's Tobacco Special	8.00	2.47	4.00
J. D. Farrier's Special Guano	8.00	2.47	3.00
Graves' Cotton Grower Guano.....	8.00	2.47	3.00
Golden Gem Guano	8.00	2.47	3.00
Wilson High Grade Guano.....	8.00	2.27	2.00
Planters' Friend Guano	8.00	2.06	3.00
Carolina Choice Tobacco Guano.....	8.00	2.06	3.00
Crop King Guano	8.00	1.65	2.00
Farmers' Special Guano	8.00	1.65	2.00
Rogers' Truck Grower	7.00	5.76	7.00
Wilson Top Dresser	2.00	9.05	4.00
Perfect Top Dresser	2.00	8.23	5.00
Sulphate of Ammonia .....	....	20.57	....
Nitrate of Soda .....	....	15.63	....
Nitrate Special .....	....	10.66	2.00
Tomlinson's Nitrate Special .....	....	9.87	5.00
Sulphate of Potash .....	....	....	50.00
Muriate of Potash .....	....	....	50.00
German Kainit .....	....	....	12.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
<i>Franklin Cotton Oil and Fertilizer Co., Inc., Franklin, Va.—</i>			
Pretlow & Co.'s H. G. Acid Phosphate.....	16.00	....	....
Pretlow & Co.'s H. G. Truck Fertilizer.....	8.00	4.12	5.00
Pretlow & Co.'s Cotton-seed Meal Mixture...	8.00	2.47	3.00
Pretlow & Co.'s Samson Guano.....	8.00	1.65	2.00
Pretlow & Co.'s Peanut Grower.....	8.00	1.00	4.00
Pretlow & Co.'s Genuine German Kainit....	....	....	12.00
<i>Georgia Chemical Works, Augusta, Ga.—</i>			
High Grade Dissolved Bone Phosphate.....	16.00	....	....
Extra Dissolved Bone Phosphate.....	14.00	....	....
Dissolved Bone Phosphate.....	13.00	....	....
Georgia Bone and Potash.....	12.00	....	6.00
12 Per Cent Dissolved Bone Phosphate.....	12.00	....	....
High Grade XX Acid Phosphate with Potash.	10.00	....	4.00
Bone and Potash.....	10.00	....	2.00
Carolina Special Cotton Grower.....	9.00	2.47	4.00
Mascot Blood and Bone Guano.....	9.00	2.47	3.00
Bumper Tobacco Grower.....	9.00	1.85	4.00
Good as Gold Guano.....	9.00	1.65	3.00
Gem Crop Grower.....	9.00	1.65	2.00
Georgia Belle Compound.....	9.00	.82	2.00
Cardinal High Grade.....	8.00	3.29	4.00
Intensive Formula.....	8.00	2.47	3.00
Golden Leaf Special Tobacco Compound.....	8.00	2.47	3.00
Three Oaks High Grade Guano.....	8.00	2.47	2.00
Thunderbolt Tobacco Special.....	8.00	2.06	3.00
Georgia Formula.....	8.00	1.65	2.00
XXX Meal Mixture.....	8.00	1.65	2.00
Georgia Special Tobacco.....	8.00	1.65	2.00
Acid Phosphate with 4 Per Cent Potash.....	8.00	....	4.00
Kainit.....	....	....	12.00
<i>N. G. Grandy & Co., Elizabeth City, N. C.—</i>			
Grandy's High Grade 16 Per Cent Acid Phosphate.....	16.00	....	....
Grandy's 10-2 B. & P.	10.00	....	2.00
Grandy's High Grade 8-4-4 Bargain Guano...	8.00	3.30	4.00
Grandy's Cotton Grower.....	8.00	2.46	3.00
Grandy's Farmers 8-2-2 Guano.....	8.00	1.65	2.00
Grandy's High Grade Potato Guano.....	6.00	4.10	7.00
German Kainit.....	....	....	12.00
<i>German Kali Works, New York, N. Y.—</i>			
Muriate of Potash.....	....	....	48.00
Sulfate of Potash.....	....	....	47.00
Manure Salts.....	....	....	20.00
Kainit.....	....	....	12.00
<i>Griffith & Boyd Co., Baltimore, Md.—</i>			
High Grade 16 Per Cent Acid Phosphate.....	16.00	....	....
Grower's Favorite.....	8.00	3.30	4.00
Farmers' Potato Manure.....	8.00	.82	9.00
Fish, Bone, and Potash.....	7.25	1.50	3.00
7 Per Cent Guano.....	5.00	5.75	5.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
<i>Home Fertilizer and Chemical Co., Baltimore, Md.—</i>			
Eclipse Dissolved Phosphate	16.00	....	....
Home High Grade Acid Phosphate.....	14.00	....	....
Home Dissolved Animal Bone.....	12.00	1.65	....
Gilt Edge Crop Grower.....	10.00	1.65	4.00
Eclipse Blood, Beef and Bone.....	10.00	1.23	3.00
Home Bone and Potash.....	10.00	....	5.00
Home Alkaline Bone	10.00	....	2.00
Home Ammoniated Bone	9.00	1.65	3.00
Everybody's Fertilizer	9.00	.82	2.00
Home Standard Guano	8.00	3.30	4.00
Eclipse Dissolved Bone and Potash.....	8.00	2.48	4.00
Riosa Tobacco Compound	8.00	2.48	3.00
Special C. & C. Compound.....	8.00	2.48	3.00
Yancey's Formula for Yellow Leaf Tobacco...	8.00	2.48	2.00
Home Potato Special	8.00	1.65	10.00
Matchless Guano	8.00	1.65	4.00
Home Cereal Fertilizer	8.00	1.65	2.00
Ammoniated Bone Manure	7.00	1.65	5.00
Farmer's Choice	7.00	.82	4.00
Trucker's Special Compound	6.00	5.77	5.00
Home Vegetable Fertilizer	6.00	4.12	6.00
Eclipse Ammoniated Compound	6.00	3.30	10.00
Home Potato Grower	6.00	3.30	4.00
Sulphate of Ammonia .....	....	20.62	....
Nitrate of Soda .....	....	14.85	....
Cerealite Top Dresser .....	....	7.43	3.00
Home Fertilizer .....	....	5.77	7.00
Muriate of Potash .....	....	....	50.00
Sulphate of Potash .....	....	....	48.00
German Kainit .....	....	....	12.00
<i>Hadley, Harris & Co., Inc., Wilson, N. C.—</i>			
Hadley's Special 8-4½-7	8.00	3.70	7.00
Hadley's 8-3-5 Mixture	8.00	2.47	5.00
Golden Weed Tobacco Grower.....	8.00	2.47	3.00
Hadley Boss	8.00	2.26	2.50
Daisy Fish Mixture	8.00	1.65	2.00
Harriss' Java Tobacco Guano	7.00	3.30	7.00
Harriss' Java Tobacco Guano	7.00	3.30	7.00
Harriss' Electric Top Dresser	2.00	8.22	3.00
<i>L. Harvey & Son Co., Kinston, N. C.—</i>			
Fish Scrap .....	....	8.23	....
<i>Hampton Guano Co., Norfolk, Va.—</i>			
Pure Ground Bone	Total 20.00	3.70	....
Supreme Acid Phosphate	16.00	....	....
Hampton Acid Phosphate	14.00	....	....
Hampton 12-5 Bone and Potash.....	12.00	....	5.00
Hampton Bone and Potash Mixture.....	11.00	....	2.00
Hampton Crop Grower	10.00	....	4.00
Dauntless Potash Mixture	10.00	....	2.00
Arlington Animal Bone Fertilizer.....	9.00	1.85	4.00
Alpha Crop Grower	8.50	2.06	2.50
Little's Favorite Crop Grower	8.00	3.29	4.00
Hampton Tobacco Guano	8.00	2.47	3.00
P. P. P. Princess Prolific Producer.....	8.00	2.47	3.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Extra Tobacco Guano	8.00	1.65	2.00
Shirley Superphosphate	8.00	1.65	2.00
Hampton Special Grain and Peanut Fertilizer	8.00	1.00	4.00
Excelsior Bone and Potash.....	8.00	....	4.00
Reliance Truck Guano	7.00	4.11	5.00
Virginia Truck Grower	6.00	5.76	5.00
Hampton 10 Per Cent Truck Grower.....	5.00	8.23	3.00
Hampton Top Dresser	4.00	8.23	2.00
Nitrate of Soda .....	....	15.00	....
Dry Ground Fish .....	....	8.23	....
Special Top Dresser .....	....	7.41	3.00
Muriate of Potash .....	....	....	49.00
Sulphate of Potash .....	....	....	48.00
Genuine German Kainit .....	....	....	12.00

S. B. Harrell & Co., Inc., Norfolk, Va.—

Harrell's Acid Phosphate	14.00	....	....
Harrell's Eclipse	9.00	2.26	2.00
Harrell's Champion Cotton and Peanut Grower	8.00	1.65	2.00

Hartsville Fertilizer Co., Hartsville, S. C.—

Coker's Special for Cotton	10.00	3.29	3.00
Hartsville Special Cotton Guano.....	10.00	2.47	3.00
Hartsville Grain Guano	10.00	1.65	4.00
Hartsville Special Cotton Compound	9.00	2.47	3.00
Hartsville Special for Cotton	9.00	2.26	2.00
Farmer's Pride	9.00	1.65	2.00
Light Land Leader	8.00	5.76	5.00
Hartsville Bright Tobacco Guano.....	8.00	3.29	8.00
Hartsville Cotton Grower	8.00	3.29	4.00
Monarch Tobacco Guano	8.00	3.29	4.00
Renown Cotton Guano	8.00	3.29	4.00
Two Jay Meal Mixture	8.00	3.29	4.00
Coker's Cotton Compound	8.00	2.49	3.00
Hartsville Best Tobacco Guano.....	8.00	2.47	6.00
Hartsville Pride	8.00	2.47	4.00
Themisto Meal Mixture	8.00	2.47	3.00
Hartsville Cotton Compound	8.00	2.47	3.00
Noname Tobacco Guano	8.00	2.47	3.00
Hartsville Special Tobacco Guano.....	8.00	2.06	3.00
Cinco Cotton Compound	8.00	2.06	1.00
Hartsville Early Grower	8.00	1.65	3.00
Hartsville Special Pride	7.00	4.12	5.00
Calhoun Pride	5.00	3.29	4.00
Hartsville Special Top Dresser	4.00	8.24	4.00
Pedigreed Top Dresser	4.00	6.18	2.50
Coker's Special for Corn	2.00	5.76	7.00
Hartsville Corn Special	2.00	5.76	4.00
Thebest Top Dresser .....	....	7.42	3.00

The Hubbard Fertilizer Co., Baltimore, Md.—

Hubbard's 16 Per Cent Phosphate.....	16.00	....	....
Hubbard's 14 Per Cent Phosphate.....	14.00	....	....
Hubbard's Special Mixture 10 and 4.....	10.00	....	4.00
Hubbard's B. and P. 10 and 2.....	10.00	....	2.00
Hubbard's Noxall	8.00	3.28	4.00
Hubbard's Royal Ensign.....	8.00	2.46	4.00
Hubbard's Yellow Wrapper.....	8.00	2.46	3.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Hubbard's Fish Compound	8.00	1.64	3.00
Hubbard's Exchange Guano	8.00	1.64	2.00
Hubbard's Southern Leader.....	7.00	3.28	5.00
Hubbard's 5 Per Cent Royal Seal.....	6.00	4.10	5.00
Hubbard's Heavy Long Leaf.....	4.00	3.28	6.00
Hubbard's New Process Top Dresser.....	....	7.51	3.50
Pure German Kainit .....	....	....	12.00

M. P. Hubbard, Baltimore, Md.—

Hubbard's Horanah Special.....	8.00	2.47	3.00
Hubbard's Celebrated Phosphate.....	8.00	1.65	2.00
Commercial Prepared Lime and Potash.....	....	....	2.00

*Interstate Chemical Corporation, Charleston, S. C.,
and Charlotte, N. C.—*

Acid Phosphate	16.00	....	....
Acid Phosphate	14.00	....	....
Acid Phosphate	13.00	....	....
Acid Phosphate with Potash.....	10.00	....	4.00
Acid Phosphate with Potash.....	10.00	....	2.00
Special High Grade Guano.....	9.00	1.65	3.00
Favorite Crop Grower.....	9.00	1.65	2.00
Special High Grade Truck Guano.....	8.00	3.29	6.00
High Grade Ammoniated Fertilizer.....	8.00	3.29	4.00
Planter's Preference	8.00	2.47	3.00
Challenge Brand Guano.....	8.00	2.06	2.00
Complete Fertilizer	8.00	2.06	1.00
Ammoniated Fertilizer	8.00	1.65	2.00
Grain and Hay Producer.....	8.00	.82	4.00
Acid Phosphate with Potash.....	8.00	....	4.00
Special H. G. Meal Mixture.....	7.00	3.29	5.00
Special High Grade Formula.....	7.00	2.47	7.00
High Grade Top Dresser.....	4.00	6.17	2.50
Nitrate of Soda.....	....	14.81	....
Muriate of Potash.....	....	....	48.00
Sulphate of Potash.....	....	....	48.00
Kainit .....	....	....	12.00

International Agricultural Corporation, Atlanta, Ga.—

Muriate of Potash.....			48.00
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The Imperial Co., Norfolk, Va.—

Imperial Pure Ground Bone.....Total	20.00	3.70	
Imperial High Grade Tennessee Acid Phosphate	16.00		
Imperial High Grade Acid Phosphate.....	14.00	....	....
Imperial Southern Vineyard's Special.....	10.00	....	8.00
Imperial Catawba Wheat Grower.....	10.00	....	4.00
Imperial Carolina Wheat Mixture.....	10.00	....	3.00
Imperial Virginia Grain Mixture.....	10.00	....	2.00
Imperial Bone and Potash.....	10.00	....	2.00
Imperial Bryant's Special.....	9.00	3.29	4.00
Imperial Martin County Special Crop Grower	9.00	2.26	2.00
Imperial Crop Grower.....	9.00	1.65	4.00
Imperial Pumpelly's Piedmont Tobacco Grower	8.00	3.29	7.00
Imperial Snowflake Cotton Grower.....	8.00	3.29	4.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Imperial Tobacco Grower	8.00	3.29	4.00
Imperial Robeson County Special.....	8.00	2.47	4.00
Imperial X. L. O. Cotton Guano.....	8.00	2.47	3.00
Imperial Tobacco Guano.....	8.00	2.47	3.00
Imperial Yellow Bark Sweet Potato Guano..	8.00	2.47	3.00
Imperial Pee Dee Cotton Grower.....	8.00	2.47	3.00
Imperial F. and B. Cotton Guano.....	8.00	2.06	3.00
Imperial Bright Tobacco Guano.....	8.00	2.06	3.00
Imperial Tennessee Tobacco Guano.....	8.00	1.65	8.00
Imperial Peanut Guano.....	8.00	1.65	4.00
Imperial Cotton Grower.....	8.00	1.65	2.00
Imperial Champion Guano.....	8.00	1.65	2.00
Imperial Peanut and Corn Guano.....	8.00	1.65	2.00
Imperial Cisco Soluble Guano.....	8.00	1.65	2.00
Imperial Standard Premium Guano.....	8.00	1.65	2.00
Imperial Ammoniated Guano.....	8.00	1.00	4.00
Imperial Fish and Bone Grain Grower.....	8.00	.82	4.00
Imperial Yaddin Wheat Grower.....	8.00	....	4.00
Imperial 7-7-7 Potato Guano.....	7.00	5.76	7.00
Imperial High Grade Irish Potato Guano....	7.00	4.11	8.00
Imperial Dawson's Cotton Grower.....	7.00	2.67	2.75
Imperial Roanoke Crop Grower.....	7.00	2.47	2.00
Imperial Bryant's Special.....	6.50	2.47	10.00
Imperial Asparagus Mixture.....	6.00	4.94	7.00
Imperial 5-6-7 Potato Guano	6.00	4.11	7.00
Imperial Williams' Special Potato Guano....	6.00	4.11	5.00
Imperial Fish and Bone.....	6.00	3.29	4.00
Imperial Sweet Potato Guano	6.00	1.65	6.00
Imperial 10 Per Cent Guano.....	5.00	8.23	2.50
Imperial Ammonia Top Dresser for Spinach..	5.00	8.23	....
Imperial Special 7 Per Cent for Potatoes....	5.00	5.76	5.00
Imperial Eastern Shore Sweet Potato Special	5.00	3.29	9.00
Imperial Special Tobacco Guano.....	5.00	3.29	9.00
Imperial Bryant's Special Top Dresser.....	4.00	6.58	5.00
Imperial Laughinghouse Special Tobacco Guano	4.00	3.29	6.00
Imperial Conetoe Cotton Grower.....	4.00	3.29	4.00
Imperial Cubanola Tobacco Guano	4.00	2.47	5.00
Imperial Nitrate of Soda.....	....	15.00	....
Imperial Hardison's Special Top Dresser....	....	8.23	3.00
Imperial Dry Ground Fish Scrap.....	....	8.23	....
Imperial Top Dresser .....	....	7.40	3.00
Imperial Animal Tankage.....	....	5.76	....
Imperial Muriate of Potash.....	....	....	49.00
Imperial Sulphate of Potash.....	....	....	48.00
Imperial Genuine German Kainit.....	....	....	12.00

Imperial Cotton Oil Co., Statesville, N. C.—

Imperial 16 Per Cent Acid Phosphate.....	16.00		
Imperial High Grade Acid Phosphate.....	14.00	....	....
10-4 Bone and Potash.....	10.00	....	4.00
Imperial Bone and Potash.....	10.00	....	2.00
King Cotton	8.00	2.47	3.00
Imperial Corn Grower.....	8.00	2.47	1.50
"Grasoi"	8.00	1.65	2.00
Imperial Cotton Grower.....	8.00	1.65	2.00

N. B. Josey Guano Co., Tarboro, N. C.—

Josey's 16 Per Cent Acid Phosphate.....	16.00	....	....
Josey's Bone and Potash.....	10.00	....	4.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Josey's Prolific Cotton Grower.....	9.00	2.27	2.00
Josey's Truck Guano	8.00	4.10	5.00
Josey's S-4-4 C. S. Meal and Fish Scrap Guano	8.00	3.30	4.00
Josey's Tip Top C. S. Meal and Fish Scrap Tobacco Guano	8.00	2.47	3.00
Josey's Home Builder C. S. M. and F. Guano.	8.00	2.47	3.00
Josey's Favorite C. S. Meal and Fish Scrap Guano	8.00	2.05	2.50
Josey's C. S. Meal Guano.....	8.00	1.65	2.00
Josey's Potato Guano.....	7.00	5.77	7.00
Josey's Peanut Guano.....	5.50	1.23	5.50
Josey's Elite Top Dresser.....	3.00	7.42	4.00
Nitrate of Soda.....	....	15.50	....
Josey's Top Dresser.....	....	7.42	4.00
Muriate of Potash.....	....	....	48.00
Manure Salts .....	....	....	20.00
Genuine German Kainit.....			12.00

J. T. John Co., John's, N. C.—

High Grade Acid Phosphate.....	16.00		
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A. S. Lee & Sons Co., Richmond, Va.—

Thomas Basic Slag.....Total	17.00		
Lee's Corn Fertilizer.....	10.00		2.00
Lee's Wheat Fertilizer.....	10.00	....	2.00
Lee's Bone and Potash.....	9.00	....	4.00
Lee's S-3-3 Fertilizer.....	8.00	2.46	3.00
Lee's Natural Tobacco Grower.....	8.00	1.64	2.00
Lee's S-2-2 Fertilizer.....	8.00	1.64	2.00
Lee's Prepared Agricultural Lime.....	....	....	2.25

Lenoir Oil and Ice Co., Kinston, N. C.—

L. O. & I. Co. Acid Phosphate.....	16.00	....	....
Utility High Grade Fertilizer.....	8.00	3.30	4.00
Lenoir Meal Mixture.....	8.00	2.47	4.00
Caswell Cotton Grower.....	8.00	2.47	3.00
Leco Tobacco Guano.....	8.00	2.47	3.00
Kinston Special for Tobacco.....	7.00	3.30	7.00
Sugg's Special Mixture.....	7.00	2.26	4.00
Nitrate of Soda.....	....	15.67	....
Sulphate of Potash.....	....	....	50.00
Muriate of Potash.....	....	....	48.00
Genuine German Kainit .....	....	....	12.00

Lister's Agricultural Chemical Works, Newark, N. J.—

Lister's 4½-45 Bone Meal.....Total	20.59	3.70	
Lister's Buyers Choice Acid Phosphate.....	16.00	....	....
Lister's Phosphoric Acid Phosphate.....	16.00	....	....
Lister's Phosphoric Acid and Potash.....	10.00	....	4.00
Lister's Dissolved Phosphate and Potash....	10.00	....	2.00
Lister's Carolina Bright for Tobacco.....	9.00	2.47	3.00
Lister's Standard Pure Bone Superphosphate of Lime	9.00	1.65	2.00
Lister's Complete Manure.....	8.00	2.47	3.00
Lister's Ammoniated Dissolved Bone Phos- phate	8.00	2.06	2.00
Lister's Success Fertilizer.....	8.00	1.65	2.00
Lister's 5-6-4 Fertilizer.....	6.00	4.11	4.00
Nitrate of Soda.....	....	15.00	....

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
<i>John F. McNair, Laurinburg, N. C.—</i>			
Nitrate of Soda.....	....	14.81	....
Sulphate of Potash.....	....	....	50.00
Muriate of Potash.....	....	....	48.00
Genuine German Kainit.....	....	....	12.00
<i>E. H. & J. A. Meadows Co., New Bern, N. C.—</i>			
Diamond Acid Phosphate.....	16.00	....	....
Diamond Acid Phosphate.....	14.00	....	....
Meadows' Dissolved Bone and Potash Com- pound	10.00	....	5.00
Meadows' Dissolved Bone and Potash Com- pound	10.00	....	4.00
Meadows' Dissolved Bone and Potash Com- pound	10.00	....	2.00
Thompson's Fish Mixture.....	9.00	2.88	7.50
Meadows' Lobos Guano.....	8.00	4.11	5.00
Meadows' Ideal Tobacco Guano.....	8.00	3.29	4.00
Meadows' Sweet Potato Guano.....	8.00	2.47	10.00
Brooks' Special Tobacco Grower.....	8.00	2.47	5.00
Parker's Special Tobacco Guano.....	8.00	2.47	4.00
Dixon's High Grade Tobacco Guano.....	8.00	2.47	3.00
Meadows' Gold Leaf Tobacco Guano.....	8.00	2.47	3.00
Meadows' Roanoke Guano.....	8.00	2.05	3.00
Meadows' All Crop Guano.....	8.00	2.05	2.50
Meadows' Cotton Guano.....	8.00	1.65	2.00
Hookerton Cotton Guano	8.00	1.64	2.00
Meadows' Great Cabbage Guano.....	7.00	5.76	7.00
Meadows' Great Potato Guano.....	7.00	4.11	8.00
Meadows' 10 Per Cent Guano.....	6.00	8.23	2.70
Simmons' Special Guano.....	6.00	2.47	6.00
Nitrolite .....	....	7.43	3.00
Meadows' German Kainit.....	....	....	12.00
<i>The Miller Fertilizer Co., Baltimore, Md.—</i>			
Miller's 16 Per Cent Acid Phosphate.....	16.00	....	....
Miller's 14 Per Cent Acid Phosphate.....	14.00	....	....
Corn and Peanut Grower.....	10.50	....	2.25
Corn and Wheat Grower.....	10.50	....	2.25
The Miller Fertilizer Co.'s 10 and 4 Per Cent. Clinch	10.00	....	4.00
Trucker	10.00	....	2.00
No. 1 Potato and Vegetable Grower.....	8.00	4.12	5.00
Miller's Tobacco Special.....	8.00	3.71	7.00
Miller's Irish Potato.....	8.00	3.29	7.00
4 Per Cent Tobacco.....	8.00	3.29	4.00
Standard Phosphate	8.00	2.47	3.00
Tobacco King	8.00	2.47	3.00
Miller's High Grade	8.00	2.06	3.00
Special Tobacco Grower.....	8.00	1.65	4.00
Potato and Vegetable Guano.....	8.00	1.65	4.00
Ammoniated Dissolved Bone.....	8.00	1.65	2.00
Farmer's Profit	8.00	1.65	2.00
Everett's Peanut Special.....	8.00	.82	4.00
Miller's 7 Per Cent.....	7.00	5.76	7.00
High Grade Potato.....	6.00	4.12	7.00
Special	4.00	6.58	3.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Nitrate of Soda.....		15.05	....
Muriate of Potash.....			50.00
Sulphate of Potash.....			48.00
Kainit			12.00

Martin Fertilizer Co., Norfolk, Va.—

Martin's Pure Ground Bone	22.00	2.46	
Martin's Raw Bone Meal.....	21.00	3.70	....
Martin's Acid Phosphate	16.00	....	....
Martin's Acid Phosphate	14.00	....	....
Martin's Pure Dissolved Animal Bone.....	12.00	1.65	....
Martin's Potash and Soluble Bone.....	12.00	....	5.00
Martin's Potash and Soluble Bone.....	12.00	....	3.00
Martin's Potash and Soluble Bone.....	10.00	....	6.00
Martin's Potash and Soluble Bone.....	10.00	....	5.00
Martin's Potash and Soluble Bone.....	10.00	....	4.00
Martin's Potash and Soluble Bone.....	10.00	....	3.00
Martin's Potash and Soluble Bone.....	10.00	....	2.00
Martin's Tobacco Special	9.00	2.46	3.00
Martin's Cotton Special	9.00	2.46	3.00
Martin's Tobacco Compound	9.00	2.26	2.00
Martin's Dissolved Organic Compound	9.00	1.00	3.00
Martin's Corn and Cereal Special.....	9.00	1.00	2.00
Martin's High Grade Guano	8.75	1.65	2.00
Martin's Blood, Bone and Potash.....	8.00	4.10	7.00
Martin's Red Star Brand Fertilizer.....	8.00	4.10	5.00
Special Fertilizer	8.00	3.28	6.00
Martin's Cotton and Tobacco Guano	8.00	3.28	6.00
Martin's Cotton Guano	8.00	3.28	4.00
Martin's Red Star Brand	8.00	3.28	4.00
Martin's Blue Ribbon Brand Fertilizer	8.00	3.28	2.00
Martin's Bull Head Fertilizer	8.00	2.46	8.00
Martin's Cotton and Tobacco Guano.....	8.00	2.46	5.00
Privott's Favorite	8.00	2.46	4.00
Martin's Bull Head	8.00	2.46	3.00
Martin's Tobacco Special	8.00	2.46	3.00
Martin's Special Fertilizer	8.00	2.05	3.00
Martin's Cotton Guano	8.00	2.05	1.00
Privott's Special for Potatoes and Peanuts...	8.00	1.65	6.00
Martin's Cotton and Tobacco Guano.....	8.00	1.65	5.00
Martin's Cotton and Tobacco Guano.....	8.00	1.65	3.00
Martin's Animal Organic Compound	8.00	1.65	3.00
Martin's Slaughter House Special	8.00	1.65	2.00
Martin's Wheat Special	8.00	1.65	2.00
Martin's Carolina Special for Tobacco.....	8.00	1.65	2.00
Martin's Carolina Cotton	8.00	1.65	2.00
Martin's Corn and Cereal Special.....	8.00	1.65	2.00
Martin's Old Virginia Favorite	8.00	1.65	2.00
One Eight Four	8.00	1.03	4.00
Martin's Peanut Grower	8.00	1.03	4.00
Martin's Potash and Soluble Bone.....	8.00	....	4.00
Martin's Top Dresser	7.00	8.22	2.50
Martin's Red Star Brand Fertilizer.....	7.00	4.10	5.00
Clover's Special	7.00	3.28	8.00
Martin's Gilt Edge Potato Manure.....	7.00	2.46	10.00
Martin's 7 Per Cent Guano.....	6.00	5.74	5.00
Martin's Animal Bone Potato Fertilizer	6.00	4.10	7.00
Martin's Early Truck and Vegetable Grower.	6.00	3.28	8.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Knowles' Special	6.00	3.28	6.00
Martin's Top Dresser	5.00	8.23	2.50
Martin's Nitrate Soda .....	....	15.23	....
Martin's Muriate of Potash .....	....	....	50.00
Martin's Sulphate of Potash .....	....	....	48.00
Martin's Kainit .....	....	....	12.00

*The Mapes Formula and Peruvian Guano Co.,
Newark, N. J.—*

Mapes' Complete Manure, "A" Brand.....	10.00	2.47	2.50
Mapes' Corn Manure	8.00	2.47	6.00
Mapes' Vegetable or Complete Manure for Light Soils	6.00	4.94	6.00
Mapes' Economical Potato Manure.....	4.00	3.29	8.00

T. W. Mewborn & Co., Kinston, N. C.—

H. G. Acid Phosphate.....	16.00	....	....
Genuine German Kainit.....	....	....	12.00

D. B. Martin Co., Richmond, Va.—

Martin's Pure Ground Bone.....	22.00	2.46	....
Martin's Raw Bone Meal.....	21.00	3.70	....
Martin's Acid Phosphate.....	16.00	....	....
Martin's Acid Phosphate.....	14.00	....	....
Martin's Pure Dissolved Animal Bone.....	12.00	1.65	....
Martin's Potash and Soluble Bone.....	12.00	....	5.00
Martin's Potash and Soluble Bone.....	12.00	....	3.00
Martin's Potash and Soluble Bone.....	11.00	....	5.00
Martin's Potash and Soluble Bone.....	10.00	....	6.00
Martin's Potash and Soluble Bone.....	10.00	....	5.00
Jennette's Potash and Soluble Bone.....	10.00	....	4.00
Martin's Potash and Soluble Bone.....	10.00	....	4.00
Martin's Potash and Soluble Bone.....	10.00	....	3.00
Martin's Potash and Soluble Bone.....	10.00	....	2.00
Jennette's Potash and Soluble Bone.....	10.00	....	2.00
Martin's Tobacco Special.....	9.00	2.46	3.00
Martin's Cotton Special.....	9.00	2.46	3.00
Martin's Tobacco Compound.....	9.00	2.26	2.00
Johnson's High Grade.....	9.00	2.05	5.00
Martin's Dissolved Organic Compound.....	9.00	1.00	3.00
Martin's Corn and Cereal Special.....	9.00	1.00	2.00
Martin's High Grade Guano.....	8.75	1.65	2.00
Martin's Blood, Bone and Potash.....	8.00	4.10	7.00
Martin's Red Star Brand Fertilizer.....	8.00	4.10	5.00
Special Fertilizer	8.00	3.28	6.00
Martin's Cotton and Tobacco Guano.....	8.00	3.28	6.00
Jennette's Cotton Guano	8.00	3.28	4.00
Martin's Tobacco Special.....	8.00	3.28	4.00
Martin's Cotton Guano.....	8.00	3.28	4.00
Martin's Red Star Brand.....	8.00	3.28	4.00
Martin's Blue Ribbon Brand Fertilizer.....	8.00	3.28	2.00
Martin's Bull Head Fertilizer.....	8.00	2.46	8.00
Martin's Cotton and Tobacco Guano.....	8.00	2.46	5.00
Privott's Favorite	8.00	2.46	4.00
Martin's Bull Head.....	8.00	2.46	3.00
Martin's Tobacco Special.....	8.00	2.46	3.00
Martin's Meal Mixture.....	8.00	2.46	3.00
Jennette's Slaughter House Mixture.....	8.00	2.46	3.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Martin's Special Fertilizer.....	8.00	2.05	3.00
Martin's Cotton Guano	8.00	2.05	1.00
Privott's Special for Potatoes and Peanuts...	8.00	1.65	6.00
Martin's Cotton and Tobacco Guano.....	8.00	1.65	5.00
Martin's Cotton and Tobacco Guano.....	8.00	1.65	3.00
Martin's Animal Organic Compound.....	8.00	1.65	3.00
Jennette's Beef Blood and Bone.....	8.00	1.65	2.00
Martin's Slaughter House Special.....	8.00	1.65	2.00
Martin's Wheat Special.....	8.00	1.65	2.00
Martin's Carolina Special for Tobacco.....	8.00	1.65	2.00
Martin's Carolina Cotton.....	8.00	1.65	2.00
Martin's Corn and Cereal Special.....	8.00	1.65	2.00
Martin's Old Virginia Favorite.....	8.00	1.65	2.00
One Eight Four.....	8.00	1.03	4.00
Martin's Peanut Grower.....	8.00	1.03	4.00
Martin's Potash and Soluble Bone.....	8.00	....	4.00
Martin's Top Dresser.....	7.00	8.22	2.50
Martin's Red Star Brand Fertilizer.....	7.00	4.10	5.00
Glover's Special	7.00	3.28	8.00
Martin's Gilt Edge Potato Manure.....	7.00	2.46	10.00
Martin's 7 Per Cent Guano.....	6.00	5.74	5.00
Martin's Animal Bone Potato Fertilizer.....	6.00	4.10	7.00
Martin's Early Truck and Vegetable Grower.	6.00	3.28	8.00
Knowles' Special	6.00	3.28	6.00
Martin's Top Dresser.....	5.00	8.22	2.50
Nitrate of Soda.....	....	15.23	....
Muriate of Potash.....	....	....	50.00
Sulphate of Potash.....	....	....	48.00
Genuine German Kainit .....	....	....	12.00

McNair Phosphate Co., Laurinburg, N. C.—

Acid Phosphate	16.00	....	....
Acid Phosphate	14.00	....	....
Humus	10.00	3.29	5.00
Rocky Ford	10.00	2.47	7.00
Florena	8.00	3.29	4.00
Floradora	8.00	3.29	4.00
Supply Company Special.....	8.00	2.47	4.00
Oceola	8.00	2.47	3.00
Rob Roy	8.00	2.47	3.00
Red Raven	8.00	1.65	3.00
Bostick's High Grade.....	7.00	3.29	5.00
Scotland Special	6.40	2.13	3.00
Floradora Top Dresser.....	4.00	6.58	4.00
Nitrate of Soda.....	....	15.63	....
Muriate of Potash.....	....	....	48.00
German Kainit .....	....	....	12.00
Robeson Special .....	....	....	....

Marietta Fertilizer Co., Atlanta, Ga.—

Bone Meal	Total	24.00	2.47	....
Raw Bone Meal.....	Total	22.00	3.70	....
Marietta Extra H. G. Acid.....		17.00	....	....
Marietta XXXX High Grade Acid Phosphate		16.00	....	....
Marietta High Grade Acid Phosphate.....		14.00	....	....
Marietta 13-4		13.00	....	4.00
Marietta Acid Phosphate		13.00	....	....
Marietta Potash Acid.....		12.00	....	6.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Marietta Phosphate and Potash.....	12.00	....	4.00
Marietta Wheat and Clover Grower.....	12.00	....	2.00
Marietta Truck Guano.....	10.00	3.30	4.00
Marietta Ammoniated Bone.....	10.00	2.47	3.00
Langford's Special	10.00	1.65	4.00
Cooper's High Grade Guano.....	10.00	1.65	2.00
Fish Compound	10.00	1.65	2.00
Royal Seal Guano.....	10.00	1.65	2.00
Tonawando Guano	10.00	1.65	2.00
Marietta Special Guano	10.00	.82	3.00
Marietta Potash Mixture.....	10.00	....	5.00
Marietta Potash Special.....	10.00	....	4.00
Marietta Dissolved Bone Potash.....	10.00	....	2.00
Marietta Cotton Grower.....	9.00	2.47	3.00
Marietta Fertilizer, No. 9-2½-5.....	9.00	2.05	5.00
Marietta Boll Producer.....	9.00	1.65	3.00
Marietta Beef Blood and Bone.....	9.00	1.65	3.00
Marietta Blood, Bone and Potash.....	8.00	4.11	7.00
Marietta Fertilizer, No. 836.....	8.00	2.47	6.00
Fertilizer No. 834 for Tobacco.....	8.00	2.47	4.00
Marietta Tobacco Special.....	8.00	2.47	3.00
Marietta Fertilizer, No. 833.....	8.00	2.47	3.00
Pride of Piedmont.....	8.00	2.47	3.00
Farmers' Choice	8.00	2.06	3.00
Marietta Best for Tobacco.....	8.00	2.06	3.00
Marietta Sweet Potato Special.....	8.00	2.06	3.00
Marietta Special Potato.....	8.00	1.65	10.00
Marietta Fruit and Root Special.....	8.00	1.65	5.00
Marietta Fertilizer, No. 823.....	8.00	1.65	3.00
Marietta Guano	8.00	1.65	2.00
Marietta Solid South.....	8.00	1.65	2.00
Marietta Golden Grain Grower.....	8.00	....	4.00
Marietta Manure Substitute.....	6.00	3.30	4.00
Marietta Fertilizer, No. 4104.....	4.00	8.23	4.00
Marietta Top Dresser	4.00	6.18	2.50
McLean's Magic Mover.....	3.00	8.23	2.00
Tankage	2.00	8.24	....
Sulphate of Ammonia .....	....	20.00	....
Nitrate of Soda.....	....	14.81	....
Marietta Top Dresser .....	....	7.81	4.00
Marietta Top Dresser .....	....	7.40	3.00
Muriate of Potash.....	....	....	50.00
Sulphate of Potash.....	....	....	50.00
German Kainit .....	....	....	12.00

The MacMurphy Co., Charleston, S. C.—

High Grade Acid Phosphate, 14 Per Cent....	14.00	....	....
Acid Phosphate	13.00	....	....
Acid Phosphate and Potash.....	12.00	....	1.00
Acid Phosphate and Potash.....	11.00	....	5.00
Acid Phosphate and Potash.....	10.00	....	5.00
Acid Phosphate and Potash.....	10.00	....	4.00
Acid Phosphate and Potash.....	10.00	....	2.00
Wilcox & Gibbs Co.'s Manipulated Guano....	9.00	2.26	2.00
Special Cotton and Corn 9-2-2.....	9.00	1.65	2.00
Special 8-4-6 Guano	8.00	3.29	6.00
Special 8-4-4 Cotton Guano.....	8.00	3.29	4.00
Special 8-4-4 Tobacco Guano	8.00	3.29	4.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Special 8-3-3 Cotton and Corn.....	8.00	2.47	3.00
Special 8-3-3 Tobacco Guano.....	8.00	2.47	3.00
Standard 8-2½-1 Guano	8.00	2.06	1.00
Special 8-2-2 Guano	8.00	1.65	2.00
Nitrate of Soda.....	....	14.81	....
Muriate of Potash.....	....	....	48.00
Sulphate of Potash.....	....	....	48.00

Marlboro Fertilizer Co., Bennettsville, S. C.—

Marlboro Perfection Acid Phosphate.....	16.00		
Nitrate of Soda	14.80	....	....
Marlboro High Grade Acid Phosphate.....	14.00	....	....
Marlboro Standard Acid Phosphate.....	13.00	....	....
Marlboro Perfection	8.00	3.29	4.00
Marlboro Special	8.00	3.29	4.00
Farmers Mixture	8.00	3.29	4.00
Marlboro High Grade	8.00	2.47	3.00
Marlboro Excelsior	8.00	2.47	3.00
Marlboro Complete Fertilizer	7.00	2.47	12.00
Farmers Special Mixture	6.00	2.47	2.50
Marlboro Top Dresser	4.00	8.25	3.00
Muriate of Potash .....	....	....	48.00
Marlboro German Kainit .....	....	....	12.00

North Carolina Cotton Oil Co., Wilmington, N. C.—

High Grade Acid Phosphate.....	16.00	....	....
Wilmington Bone and Potash.....	10.00	....	4.00
Pate's High Grade	9.00	2.47	3.00
Cockrell & Williams' Cotton Grower.....	9.00	2.27	2.00
Wilmington Mortgage Lifter	9.00	2.27	2.00
Wilmington's Pride	8.00	4.12	7.00
Wilmington's Truck Grower	8.00	3.30	4.00
Bullock's High Grade	8.00	3.30	4.00
Wilmington's Full Value	8.00	3.30	4.00
Wilmington Fruit Grower	8.00	2.47	10.00
Best Tobacco Grower	8.00	2.47	7.50
John's Special	8.00	2.47	4.00
Bullock's Cotton Grower	8.00	2.47	4.00
Wilmington Farmer Boy	8.00	2.47	4.00
Wilmington High Grade	8.00	2.47	3.00
Wilmington Leader	8.00	2.47	3.00
Clute's Cotton Grower.....	8.00	2.47	3.00
L. P. B. Special	8.00	2.47	3.00
Carter's Lifter	8.00	2.47	3.00
Lewis's Special	8.00	2.47	3.00
Cooper's Special	8.00	2.47	3.00
The Stone Company Special.....	8.00	2.47	3.00
Clute's Cotton Grower	8.00	2.47	3.00
Wilmington Leader	8.00	2.47	3.00
Wilmington High Grade	8.00	2.47	3.00
L. P. B. Special	8.00	2.47	3.00
Lewis's Special	8.00	2.47	3.00
Carter's Lifter	8.00	2.47	3.00
Wilmington Standard	8.00	2.47	2.50
Pate's Special	8.00	2.47	2.00
Currie's Crop Grower.....	8.00	2.06	4.00
Wilmington Tobacco Grower	8.00	2.06	3.00
Wilmington Banner	8.00	1.65	3.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Clark's Special	8.00	1.65	3.00
Maultsby's Cotton Grower	8.00	1.65	3.00
Wilmington Cotton Grower	8.00	1.65	2.00
Wilmington Special	8.00	1.65	2.00
Wilmington Cotton Mixture	7.00	2.47	5.00
High Grade Tobacco	6.00	3.30	10.00
Wilmington Headlight	6.00	3.30	8.00
Wilmington High Grade Top Dresser.....	4.50	7.40	3.00
Dried Blood .....	....	16.00	....
Nitrate of Soda .....	....	14.80	....
Wilmington Special Top Dresser.....	....	7.40	3.00
H. G. Ground Tankage.....	....	7.00	....
Muriate of Potash .....	....	....	50.00
Sulphate of Potash .....	....	....	48.00
Kainit .....	....	....	12.00
<i>North Carolina Cotton Oil Co., Raleigh, N. C.—</i>			
Raleigh Standard Guano	8.00	2.26	2.00
<i>North Carolina Cotton Oil Co., Charlotte, N. C.—</i>			
Dixie Standard	8.00	2.48	3.00
Majestic	8.00	1.65	2.00
<i>North Carolina Cotton Oil Co., Henderson, N. C.—</i>			
Special Mixture W. F. Marsh, Jr.....	10.00	3.00	3.00
Pride of Vance Tobacco Fertilizer.....	9.00	2.47	3.00
Unedit Tobacco Fertilizer	9.00	2.47	3.00
Henderson Tobacco Fertilizer	9.00	2.47	3.00
Franklin Tobacco Fertilizer	9.00	2.47	3.00
Two in One	8.00	3.29	4.00
Curran's Special for Tobacco.....	8.00	3.29	4.00
Henderson High Grade.....	8.00	2.47	3.00
McKinne Mixture	8.00	2.26	3.25
Brewer's Special	8.00	2.26	2.00
American Pet	8.00	2.26	2.00
Henderson Cotton Grower	8.00	1.65	2.00
Franklin Cotton Grower	8.00	1.65	2.00
Unedit Cotton Grower.....	8.00	1.65	2.00
Vance Cotton Grower.....	8.00	1.65	2.00
<i>Nitrate Agencies Co., New York, Baltimore, Savannah, Charleston, and Norfolk.—</i>			
Basic Slag	17.00	....	....
Acid Phosphate	16.00	....	....
Acid Phosphate	14.00	....	....
Nitrate of Soda .....	....	15.00	....
Muriate of Potash .....	....	....	50.00
Sulphate of Potash .....	....	....	48.00
Manure Salts .....	....	....	20.00
Kainit .....	....	....	12.00
<i>New Bern Cotton Oil and Fertilizer Mills, New Bern, N. C.—</i>			
Thomas Phosphate	18.00	....	....
Bone Meal	16.00	2.47	....
16 Per Cent Acid Phosphate.....	16.00	....	....
14 Per Cent Acid Phosphate.....	14.00	....	....

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Special Corn and Peanut Grower.....	11.00	....	2.00
High Grade Bone and Potash.....	10.00	....	4.00
Carteret Bone and Potash.....	10.00	....	2.00
Greene County Tobacco Fertilizer.....	9.00	2.47	3.00
Oriole Tobacco Grower	8.00	3.30	4.00
Harvey's Special Meal and Fish Guano.....	8.00	2.47	3.00
Special C. S. M. Mixture.....	8.00	2.47	3.00
Foy's High Grade Fertilizer.....	8.00	2.47	3.00
Lenoir Bright Leaf Tobacco Grower.....	8.00	2.47	3.00
Pitt's Prolific Golden Tobacco Guano.....	8.00	2.47	3.00
Favorite Cotton Grower.....	8.00	2.27	2.00
Onslow's Farmers' Reliance Guano.....	8.00	2.06	3.00
Jones County Premium Crop Grower.....	8.00	2.06	3.00
Craven Cotton Guano	8.00	1.65	2.00
Greene County Standard Fertilizer.....	8.00	1.65	2.00
Dunn's Standard Truck Grower.....	7.00	5.77	7.00
Ives' Irish Potato Guano.....	7.00	4.12	7.00
Eureka Tobacco Fertilizer	6.00	3.30	7.00
Pamlico Electric Top Dresser.....	5.00	8.25	2.50
Wooten's Special Tobacco Guano.....	4.00	3.30	6.00
Sulphate of Ammonia .....	....	20.62	....
Nitrate of Soda .....	....	15.67	....
Ground Blood .....	....	13.20	....
Ground Tankage .....	....	9.90	....
Eureka Top Dresser .....	....	8.25	3.00
High Grade Fish Scrap.....	....	8.25	....
Sulphate of Potash .....	....	....	50.00
Muriate of Potash .....	....	....	48.00
Genuine German Kainit .....	....	....	12.00

Norfolk Fertilizer Co., Norfolk, Va.—

Pure Ground Bone.....Total	20.00	3.70	....
Oriana 16 Per Cent Acid Phosphate.....	16.00	....	....
Whitney H. G. Acid Phosphate.....	16.00	....	....
Oriana 14 Per Cent Acid Phosphate.....	14.00	....	....
Oriana Wheat Grower	10.00	....	4.00
Shenandoah Wheat Mixture	10.00	....	3.00
Young's Grain Grower	10.00	....	2.00
Oriana Bone and Potash.....	10.00	....	2.00
Oriana C. S. M. Special.....	9.00	2.26	2.00
Oriana Complete Fertilizer	8.00	3.29	4.00
Oriana First Step Tobacco Guano.....	8.00	3.29	4.00
Oriana Tobacco Guano	8.00	2.47	3.00
Oriana for Cotton	8.00	2.47	3.00
Oriana Bright Leaf Guano.....	8.00	2.06	3.00
Oriana Cotton Guano	8.00	1.65	2.00
Oriana Crop Grower.....	8.00	1.65	2.00
Mayodan Valley Wheat Grower.....	8.00	....	4.00
Oriana Special Mixture	6.00	4.11	5.00
Oriana Truck Guano	5.00	5.76	5.00
Pine Top Special Crop Grower.....	5.00	1.65	6.00
Nitrate of Soda Mixture for Top Dressing			
Cotton	4.00	8.23	2.00
Oriana High Grade Tobacco Guano.....	4.00	3.28	6.00
Nitrate of Soda .....	....	15.00	....
Dry Ground Fish .....	....	8.23	....
Norfolk Top Dresser .....	....	7.40	3.00
Animal Tankage .....	....	5.76	....

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Muriate of Potash .....	....	....	49.00
Sulphate of Potash .....	....	....	48.00
Genuine German Kainit .....	....	....	12.00
<i>Navassa Guano Co., Wilmington, N. C.—</i>			
Pure Raw Bone	22.50	3.71	....
Thomas Phosphate	17.00	....	....
Navassa 17 Per Cent Acid Phosphate.....	17.00	....	....
Navassa 16 Per Cent Acid Phosphate.....	16.00	....	....
Navassa Acid Phosphate	14.00	....	....
Navassa Dissolved Bone	13.00	....	....
Navassa Wheat Belt Special	12.00	....	6.00
Navassa Special Grain Mixture.....	12.00	....	5.00
Navassa Special Wheat Mixture.....	12.00	....	4.00
Navassa Gray Land Mixture.....	12.00	....	4.00
Navassa Acid Phosphate	12.00	....	....
Maxim Guano	10.00	2.47	2.00
Corona Guano	10.00	1.65	2.00
Johnston County Bone and Potash.....	10.00	....	5.00
Navassa Wheat and Grass Grower.....	10.00	....	4.00
Navassa Dissolved Bone with Potash.....	10.00	....	4.00
Navassa Wheat Mixture	10.00	....	2.25
Navassa Dissolved Bone with Potash.....	10.00	....	2.00
Navassa Fish Guano.....	9.00	2.47	3.00
Robeson County Special	9.00	2.47	3.00
Navassa Big Boll Special.....	9.00	2.26	2.00
Navassa Manipulated Guano	9.00	2.26	2.00
Osceola Guano	9.00	1.65	3.00
Cape Fear Meal Mixture	9.00	1.65	3.00
Harvest Queen Fertilizer.....	9.00	1.65	2.00
Navassa Complete Fertilizer	9.00	1.65	1.00
Long's Wheat and Grain Gnano.....	9.00	.82	3.00
Farmers Mixture	8.75	1.85	4.00
Navassa Universal Fertilizer	8.50	2.06	1.00
Enterprise Strawberry Grower	8.00	3.29	11.00
Navassa Special Meal Fertilizer.....	8.00	3.29	4.00
Coree Tobacco Guano	8.00	3.29	4.00
Navassa High Grade Fertilizer.....	8.00	3.29	4.00
Navassa Special Truck Guano.....	8.00	3.29	4.00
Navassa Complete Tobacco Mixture.....	8.00	2.47	10.00
Navassa Carib Guano	8.00	2.47	10.00
Navassa Standard Tobacco Guano.....	8.00	2.47	7.00
Navassa Blood and Meal Mixture.....	8.00	2.47	5.00
Maultsby's Tobacco Guano	8.00	2.47	5.00
Navassa Big Cotton Grower.....	8.00	2.47	4.00
Orton Guano	8.00	2.47	4.00
Navassa High Grade Guano	8.00	2.47	3.00
Clarendon Tobacco Guano	8.00	2.47	3.00
Navassa Standard Meal Guano.....	8.00	2.47	3.00
Navassa Cotton-seed Meal Special 3 Per Cent Guano	8.00	2.47	2.00
Navassa Strawberry Top Dressing.....	8.00	2.06	4.00
Sullivan Tobacco Special	8.00	2.06	3.00
Mogul Guano	8.00	2.06	3.00
Maultsby's Meal Mixture	8.00	2.06	3.00
Navassa Guano for Tobacco.....	8.00	2.06	2.00
Ammoniated Soluble Navassa Guano.....	8.00	2.06	2.00
Brooks' Ammoniated Guano	8.00	2.06	1.50

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Navassa Fruit Grower Fertilizer.....	8.00	1.65	6.00
Harvest King Guano	8.00	1.65	3.00
Clark's Special Cotton-seed Meal Guano.....	8.00	1.65	3.00
Navassa Grain Fertilizer	8.00	1.65	2.00
Navassa Cotton-seed Meal Guano.....	8.00	1.65	2.00
Navassa Cotton Fertilizer	8.00	1.65	2.00
Oconeechee Tobacco Guano	8.00	1.65	2.00
Navassa Dissolved Bone with Potash.....	8.00	....	4.00
Navassa Lettuce Grower Fertilizer.....	7.00	5.76	7.00
Maultsby's Tobacco Special	7.00	4.12	10.00
Navassa Root Crop Fertilizer.....	7.00	4.12	7.00
Navassa Creole Guano	6.00	4.12	7.00
Navassa Special for Tobacco.....	6.00	3.29	7.00
Navassa H. G. Top Dresser.....	4.00	7.82	4.00
Navassa Top Dresser	4.00	6.17	2.50
Navassa Quick Results Top Dresser.....	4.00	4.94	2.50
Navassa Special Top Dresser.....	2.00	5.76	2.50
Sulphate of Ammonia .....	....	20.59	....
Nitrate of Soda .....	....	14.82	....
Blood .....	....	13.15	....
High Grade Tankage .....	....	8.25	....
Fish Scrap .....	....	8.24	....
Navassa Big Lick Top Dresser.....	....	7.41	3.00
Muriate of Potash .....	....	....	48.00
Sulphate of Potash.....	....	....	48.00
Genuine German Kainit .....	....	....	12.00

G. Ober & Sons Co., Baltimore, Md.—

Pure Raw Bone Meal.....Total	21.00	3.71	....
Ober's High Grade Acid Phosphate.....	16.00	....	....
Ober's Dissolved Bone Phosphate.....	14.00	....	....
Ober's Standard Potash Compound.....	12.00	....	5.00
Ober's Dissolved Animal Bone.....	10.00	2.47	....
Ober's Acid Phosphate with Potash.....	10.00	....	4.00
Ober's Dissolved Bone, Phosphate and Potash.	10.00	....	2.00
Ober's Special High Grade Fertilizer.....	9.00	2.47	3.00
Ober's Special Ammoniated Dissolved Bone..	9.00	1.65	2.00
Ober's Farmers' Mixture	9.00	.82	2.00
Ober's H. G. Fertilizer.....	8.00	3.30	4.00
Ober's Special Compound for Tobacco.....	8.00	2.47	3.00
Ober's Special Compound for All Crops.....	8.00	2.47	3.00
Cooper's Pungo Guano	8.00	2.06	2.00
Ober's Standard Tobacco Fertilizer.....	8.00	1.65	2.00
Ober's Special Cotton Compound.....	8.00	1.65	2.00
Ober's Soluble Ammoniated Superphosphate of Lime	8.00	1.65	2.00
Ober's Stag Guano	8.00	.82	4.00
Ober's Acid Phosphate with Potash.....	8.00	....	4.00
Ground Fish	7.30	9.00	....
Ober's Complete Vegetable Fertilizer.....	7.00	4.12	5.00
Ober's Complete Fertilizer.....	6.00	4.12	6.00
Red Seal Special Tobacco Guano.....	6.00	2.47	7.00
Ober's Special Tobacco Bed Fertilizer, 10 Per Cent	4.00	8.25	3.00
Nitrate of Soda .....	....	15.50	....
Ground Blood .....	....	13.00	....
Sulphate of Potash .....	....	....	48.00
Muriate of Potash .....	....	....	48.00
Kainit .....	....	....	12.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
<i>Ocean Fisheries Co., Wilmington, N. C.—</i>			
Machine Dried Fish Scrap.....	6.00	8.00	....
Acidulated Fish Scrap	3.00	5.00	....
<i>Old Buck Guano Co., Richmond, Va.—</i>			
Old Buck 16 Per Cent Acid Phosphate.....	16.00	....	....
Old Buck 14 Per Cent Acid Phosphate.....	14.00	....	....
Old Buck Bristol Alkaline Bone.....	12.00	....	5.00
Old Buck English Tobacco, Potato and Truck	10.00	3.30	6.00
Old Buck Corn Guano	10.00	1.65	4.00
Old Buck German 10 and 4 Mixture.....	10.00	....	4.00
Old Buck Hartford Bone and Potash.....	10.00	....	2.00
Old Buck James River Peanut and Corn....	9.00	1.00	3.00
Old Buck Florida General Truckee.....	8.00	3.30	4.00
Old Buck Test Farm Tobacco.....	8.00	2.47	4.00
Old Buck Quincy Tobacco and Garden.....	8.00	2.47	3.00
Old Buck High Prize Tobacco.....	8.00	2.05	3.00
Old Buck Saxon Corn and Tobacco.....	8.00	1.65	2.00
Old Buck Warsaw Guano	8.00	1.65	2.00
Old Buck Water Soluble Top Dresser.....	4.00	8.23	2.00
<i>The Pocomoke Guano Co., Norfolk, Va.—</i>			
Pure Ground Bone	Total 20.00	3.70	....
Superb Acid Phosphate	16.00	....	....
Peerless Acid Phosphate	14.00	....	....
Pocomoke 12-5 Bone and Potash.....	12.00	....	5.00
Alkali Bone	11.00	....	2.00
Pocomoke Bone and Potash Mixture.....	10.00	....	4.00
10-2 Potash Mixture	10.00	....	2.00
Stephenson Special	9.00	4.11	4.00
Monticello Animal Bone Fertilizer.....	9.00	1.85	4.00
Cinco Tobacco Guano	8.50	2.06	2.50
Pocomoke Superphosphate	8.50	1.65	2.00
Electric Crop Grower	8.50	1.65	2.00
Garrett's Grape Grower	8.00	3.29	10.00
Cobb's Special	8.00	3.29	6.00
Faultless Ammoniated Superphosphate.....	8.00	3.29	4.00
Monarch Tobacco Grower	8.00	2.47	3.00
Harvey's High Grade Monarch.....	8.00	2.47	3.00
Pocomoke Sweet Potato Grower.....	8.00	2.47	3.00
CCC Crescent Complete Compound.....	8.00	1.65	3.00
Pamlico Superphosphate	8.00	1.65	2.00
Pocomoke Wheat, Corn and Peanut Manure..	8.00	1.00	4.00
Pocomoke Defiance Bone and Potash.....	8.00	....	4.00
Pocomoke Truck Grower 5 Per Cent.....	7.00	4.11	5.00
Standard Truck Guano	7.00	4.11	5.00
Seaboard Popular Truckee.....	6.00	5.76	5.00
Freeman's 7 Per Cent Irish Potato Grower..	6.00	5.76	5.00
Exum's Special	6.03	2.47	3.50
Coast Line Truck Guano.....	5.00	8.23	3.00
Pocomoke Top Dresser	4.00	8.23	2.00
Smith's Special Formula	4.00	3.29	6.00
Nitrate of Soda .....	....	15.00	....
Dry Ground Fish .....	....	8.23	....
Special Top Dresser .....	....	7.41	3.00
Muriate of Potash .....	....	....	49.00
Sulphate of Potash .....	....	....	48.00
Genuine German Kainit .....	....	....	12.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
<i>Peruvian Guano Corporation, Charleston, S. C.—</i>			
Genuine Peruvian Guano Pleione No. 1.....	20.00	3.08	3.25
Thomas Phosphate (Basic Slag).....Total	18.00	....	....
Peruvian H. G. Acid Phosphate.....	16.00	....	....
Genuine Peruvian Guano Simetra No. 1.....	14.00	3.29	2.00
H. G. Genuine Peruvian Guano Ex. S. S. Chipana	14.00	3.21	2.00
H. G. Genuine Peruvian Guano Ex. S. S. Condor	14.00	2.46	2.00
Genuine Peruvian Guano Simetra No. 2.....	14.00	2.46	2.00
Genuine Peruvian Guano Pleione No. 2.....	14.00	2.30	2.50
Peruvian Acid Phosphate	14.00	....	....
Genuine Peruvian Guano Madura No. 2.....	13.00	4.93	2.00
H. G. Genuine Peruvian Guano Ex. S. S. Capac	13.00	4.93	2.00
Peruvian Acid Phosphate	13.00	....	....
Genuine Peruvian Guano Madura No. 1.....	12.00	9.45	3.00
Genuine Peruvian Guano Ex. S. S. Marie Teresa	12.00	2.75	1.80
"Chincha Island" High Grade Peruvian Mix- ture	10.00	3.29	4.00
"Penguin" Peruvian Compound	10.00	2.46	3.00
Petrel Peruvian Mixture	10.00	2.00	4.00
"Albatross" Peruvian Mixture	10.00	1.64	4.00
H. G. Peruvian Mixture	10.00	1.64	2.00
Special Peruvian Wheat Mixture.....	10.00	1.64	2.00
Peruvian Potash Special	10.00	....	4.00
Sea Island Peruvian Mixture.....	9.00	2.46	3.00
Cuzco Peruvian Mixture	9.00	1.64	6.00
Laranago Peruvian Formula	9.00	1.64	2.00
Peruvian Top Dresser	8.00	6.99	3.50
Bellestas H. G. Peruvian Mixture.....	8.00	3.29	4.00
Cormorant H. G. Peruvian Mixture.....	8.00	2.46	4.00
Lobos Peruvian Mixture	8.00	2.46	3.00
Piguero Peruvian Compound	8.00	2.46	2.00
Alcatroz Peruvian Corn Grower.....	8.00	1.64	3.00
Standard Peruvian Mixture	8.00	1.64	2.00
Excelsior Peruvian Formula	8.00	.83	3.09
Peruvian Acid Potash Mixture.....	8.00	....	4.00
Nitrate of Soda .....	....	14.80	....
Dried Blood .....	....	13.10	....
Fish Scrap .....	....	8.20	....
Muriate of Potash .....	....	....	49.00
Sulphate of Potash .....	....	....	48.00
Genuine German Kainit .....	....	....	12.00

Z. V. Pate, Laurel Hill, N. C.—

Cotton Fertilizer	9.00	2.47	3.00
Tuxedo Fertilizer	8.00	2.47	3.00
High Grade Fertilizer	7.00	3.29	5.00
Cotton-seed Meal Fertilizer	6.50	2.47	2.50
Soda and Potash Mixture .....	....	7.41	6.00

Pan-American Fertilizer Co., Norfolk, Va.—

Pan-American 16 Per Cent Acid Phosphate...	16.00		
Pan-American Harvest Winner	11.00	....	5.00
Pan-American Ideal Mixture	10.00	....	4.00
Pan-American 10 and 2	10.00	....	2.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Pan-American Favorite Compound	8.00	3.29	4.00
Pan-American Special Cotton Grower	8.00	2.47	3.00
Pan-American Universal Phosphate	8.00	1.65	2.00
Pan-American Peanut and Grain Special....	8.00	1.03	4.00
Pan-American Special	7.00	5.76	5.00
Pan-American 6 Per Cent Trucker.....	7.00	4.94	5.00
Pan-American Potato, Tobacco and Truck...	7.00	4.11	5.00
Pan-American Norfolk Co. Special	7.00	3.29	5.00
Pan-American P. Trucker	6.00	5.76	6.00
Pan-American Universal Trucker	6.00	5.76	5.00
Pan-American Carolina Trucker	6.00	4.11	7.00
Pan-American Dixie Standard	6.00	4.11	5.00
Pan-American Tip Top Dresser	5.00	8.23	2.00
Pan-American Potato and Truck Special....	5.00	5.76	5.00
Pan-American Truckers' Ideal Guano	5.00	4.94	5.00
Pan-American Universal Top Dresser	3.00	8.23	4.00

Pamlico Chemical Co., Washington, N. C.—

Pamlico 16 Per Cent Acid Phosphate.....	16.00		
Pamlico Bone Phosphate	14.00	....	....
Martin County Peanut Guano	10.00	1.23	4.00
Pamlico Peanut Guano	10.00	....	4.00
Dissolved Bone and Potash.....	10.00	....	2.00
Pitt County High Grade Tobacco Guano.....	9.00	2.88	10.00
Blount's Special Cotton Grower.....	9.00	2.27	2.09
Prosperity Cotton Grower	9.00	2.26	2.03
Bissett's Special Cotton Grower.....	9.00	2.06	4.00
United States High Grade Tobacco Guano....	8.00	4.12	10.00
Pamlico 8-5-10 Guano	8.00	4.12	10.00
Cowell's Great Potato Grower.....	8.00	4.12	7.00
Pamlico 8-4-4 Guano	8.00	3.30	4.00
Bull's Eye Tobacco Grower.....	8.00	3.30	4.00
Early Sweet Potato	8.00	2.47	10.00
Pamlico High Grade Tobacco Grower.....	8.00	2.47	5.00
Success Guano	8.00	2.47	3.00
Tobacco Growers' Friend	8.00	2.47	3.00
Farmers' Best Guano	8.00	2.06	3.00
Quick Grower	8.00	2.06	3.00
Rust Proof Cotton Guano.....	8.00	1.65	3.00
Crop Guano	8.00	1.65	2.00
Pamlico Bone and Fish	8.00	1.65	2.00
Pamlico Cotton Guano	8.00	1.65	2.00
Pamlico 7-7-7	7.00	5.77	7.00
Pamlico 7-5-8 Guano	7.00	4.12	8.00
Pamlico Special Irish Potato Guano.....	7.00	4.12	7.00
Pamlico Special Sweet Potato Guano.....	7.00	4.12	5.00
Pamlico Favorite Potato Guano	7.00	4.12	5.00
H. G. Truck Guano.....	7.00	4.12	5.00
Potato Favorite Guano	7.00	3.30	7.00
6-4-7 Tobacco Guano	6.00	3.30	7.00
Faulkland H. G. Tobacco Guano.....	6.00	2.47	6.00
Cowell's Great Cabbage Grower.....	5.00	8.25	2.50
4-4-6 Tobacco Guano	4.00	3.30	6.00
4-3-5 Guano	4.00	2.47	5.00
Cereal Top Dresser	3.00	7.42	3.00
Sulphate of Ammonia .....	....	20.62	....
Nitrate of Soda .....	....	14.85	....

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Quickstep Top Dresser		8.25	4.00
Pamlico Ground Fish		8.25	....
Sulphate of Potash			55.00
Muriate of Potash			48.00
German Kainit			12.00

*Planters Fertilizer and Phosphate Co., Charleston,
S. C.—*

16 Per Cent Acid Phosphate.....	16.00	....	....
Planters' High Grade Acid Phosphate.....	14.00	....	....
Excelsior H. G. Acid Phosphate.....	14.00	....	....
Planters' Soluble Bone	13.00	....	....
Planters' Bone and Potash	12.00	....	1.00
Planters' Special Meal	10.00	1.65	2.00
Planters' Grain Grower	10.00	.82	3.00
Special Mixture	10.00	....	5.00
Planters' Acid and Potash	10.00	....	4.00
Planters' Bone and Potash	10.00	....	2.00
Planters' Blood and Fish Guano.....	9.00	1.65	3.00
Planters' Special Mixture	9.00	.82	3.00
Planters' Special Mixture	8.00	4.12	5.00
Planters' Special Cotton Fertilizer	8.00	3.29	4.00
Planters' Bright Tobacco Fertilizer	8.00	3.29	4.00
Planters' Cotton and Corn Fertilizer.....	8.00	2.47	4.00
Planters' H. G. Tobacco Fertilizer.....	8.00	2.47	3.00
Planters' Soluble Guano	8.00	2.47	3.00
Planters' Fertilizer	8.00	2.06	2.00
Planters' Standard Fertilizer	8.00	1.65	2.00
Planters' Bone and Potash	8.00	....	4.00
Special Mixture	7.00	5.76	7.00
Special Mixture	7.00	4.11	7.00
Special Mixture	7.00	4.11	5.00
Planters' H. G. Top Dresser.....	4.00	6.18	2.50
Nitrate of Soda .....	....	14.83	....
Planters' Muriate of Potash.....	....	....	48.00
Sulphate of Potash .....	....	....	48.00
Planters' German Kainit .....	....	....	12.00

Pearsall & Co., Wilmington, N. C.—

Pearsall's H. G. Acid Phosphate.....	16.00		
Pearsall's H. G. Acid Phosphate.....	14.00	....	....
Pearsall's Bone and Potash.....	10.00	....	4.00
Hall's Special	8.00	3.30	5.00
Davis's Special	8.00	3.30	4.00
Pearsall's Bone Meal and Fish.....Total	8.00	3.30	4.00
Pearsall's Fish and Potash Compound.....	8.00	3.30	4.00
Pearsall's Berry Guano	8.00	2.47	10.00
Pearsall's Fernside Tobacco Guano	8.00	2.47	7.00
Pearsall's Useme Guano	8.00	2.47	3.00
Pearsall's High Grade Tobacco.....	8.00	2.47	3.00
Pearsall's F. F. F. G.	8.00	2.47	3.00
Oliver's Cotton and Corn.....	8.00	2.07	4.00
Currie's Cotton and Corn Guano.....	8.00	1.65	3.00
Pearsall's Corn Guano	8.00	1.65	3.00
Pearsall's Two Step Guano	8.00	1.65	2.00
Pearsall's Potato and Truck Guano.....	6.00	4.12	7.00
Pearsall's Complete Top Dresser	3.00	7.43	3.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Nitrate of Soda		14.85	....
Pearsall's Ground Fish		8.47	....
Pearsall's Top Dresser		7.42	3.00
Bone Meal		3.30	....
Muriate of Potash			48.00
Sulphate of Potash			48.00
Pearsall's German Kainit			12.00

Pacific Guano Co., Charleston, S. C.—

Standard Pacific Acid Phosphate.....	12.00	....	....
Standard Soluble Pacific Guano	8.50	1.65	2.00
High Grade Pacific Fertilizer.....	8.00	2.46	3.00

Powhatan Chemical Co., Richmond, Va.—

Pure Animal Bone	Total	25.00	2.47	....
Pure Raw Bone Meal.....	Total	22.50	3.70	....
Magic Dissolved Bone Phosphate.....		16.00	....	....
High Grade Acid Phosphate.....		14.00	....	....
Powhatan Acid Phosphate		13.00	....	....
Magic Corn Special		12.00	1.00	2.00
Magic Wheat Special		12.00	1.00	2.00
High Grade Bone and Potash Mixture.....		12.00	....	5.00
Virginia Dissolved Bone		12.00	....	....
Magic Corn Grower		10.00	.82	1.00
Magic Crop Grower		10.00	.82	1.00
Magic Bone and Potash Mixture.....		10.00	....	4.00
Bone and Potash Mixture.....		10.00	....	2.00
Austin's Special Fertilizer		9.00	2.47	6.00
Guilford Special Tobacco Fertilizer.....		9.00	2.47	6.00
Ralling's Special Fertilizer		9.00	2.47	2.00
Economic Cotton Grower		9.00	2.26	2.00
Johnson's Best Fertilizer		9.00	2.06	5.00
Holt's Magic Fertilizer		9.00	2.06	5.00
Union Magic Fertilizer		9.00	1.85	4.00
North Carolina Favorite		9.00	1.65	3.00
Powhatan Special Fertilizer		9.00	1.65	2.00
Magic Mixture		9.00	1.65	1.00
Magic Wheat Grower		9.00	.82	2.00
King Trucker		8.00	4.11	5.00
Tomlinson's Best Fertilizer		8.00	3.70	7.00
Copeland's Magic Fertilizer		8.00	3.29	8.00
North State Special		8.00	3.29	4.00
Tomlinson's Favorite Fertilizer		8.00	2.88	5.00
Special Fertilizer		8.00	2.47	7.00
Tomlinson's Magic Fertilizer		8.00	2.47	7.00
Tomlinson's Special Fertilizer		8.00	2.47	5.00
Magic Fertilizer		8.00	2.47	4.00
P. C. Co.'s Hustler		8.00	2.47	3.00
King Brand Fertilizer		8.00	2.06	3.00
White Leaf Tobacco Fertilizer.....		8.00	2.06	3.00
Powhatan Peanut Fertilizer		8.00	1.65	4.00
Magic Cotton Grower		8.00	1.65	2.00
Magic Special Fertilizer		8.00	1.65	2.00
Magic Tobacco Grower		8.00	1.65	2.00
Magic Peanut Special		8.00	.82	4.00
Magic Grain Special		8.00	.82	4.00
Magic Peanut Grower		8.00	....	4.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Magic Grain and Grass Grower.....	8.00	....	4.00
Powhatan Bone and Potash Mixture.....	8.00	....	4.00
Powhatan Trucker	7.00	4.94	5.00
Copeland's Best Fertilizer	7.00	2.88	7.00
Copeland's Special Fertilizer	6.00	3.29	7.00
Allen's Special Tobacco Fertilizer.....	6.00	1.65	5.00
Powhatan Top Dresser	4.00	8.23	4.00
Magic Top Dresser	4.00	6.17	2.50
Sulphate of Ammonia .....	....	19.75	....
Nitrate of Soda .....	....	15.63	....
Tomlinson Nitrate Muriate Special.....	....	9.87	5.00
Muriate of Potash .....	....	....	50.00
Sulphate of Potash .....	....	....	48.00
High Grade German Potash .....	....	....	16.00
Pure German Kainit .....	....	....	12.00

Pine Level Oil Mill Co., Pine Level, N. C.—

Pine Level 16 Per Cent Acid Phosphate.....	16.00		
Pine Level 14 Per Cent Acid Phosphate.....	14.00	....	....
Bone and Potash Mixture.....	11.00	....	5.00
Bone and Potash Mixture.....	10.00	....	4.00
Sutton's Potato Guano	9.00	2.88	5.00
Pine Level Prolific Guano	9.00	2.26	2.00
Xantho Tobacco Guano	8.00	3.30	4.00
Oliver's Truck Grower Guano.....	8.00	3.30	4.00
Hale's Special for Tobacco.....	8.00	2.47	4.00
Pine Level High Grade Fertilizer.....	8.00	2.47	3.00
Cotton Grower Fertilizer for All Crops.....	8.00	1.65	2.00
Sand Hill Special	6.00	2.47	3.00
H. G. Top Dresser	3.00	6.03	6.00
Nitrate of Soda .....	....	14.88	....
Muriate of Potash .....	....	....	48.00
Sulphate of Potash .....	....	....	48.00
Genuine German Kainit .....	....	....	12.00

Patapsco Guano Co., Baltimore, Md.—

Patapsco Pure Raw Bone.....Total	21.51	3.70	....
Florida Soluble Phosphate	16.00	....	....
Patapsco Pure Dissolved S. C. Phosphate.....	14.00	....	....
Patapsco High Grade Phosphate and Potash.	11.00	....	5.00
Baltimore Soluble Phosphate	11.00	....	2.00
Patapsco 10 and 4 Potash Mixture.....	10.00	....	4.00
Patapsco Soluble Phosphate and Potash.....	10.00	....	2.00
Patapsco Guano for Tobacco	9.25	2.06	2.00
Patapsco Guano	9.25	2.06	2.00
Tankage	9.15	7.41	....
Patapsco Tobacco Fertilizer	9.00	2.47	3.00
Patapsco Cotton and Corn Special.....	9.00	2.06	5.00
Patapsco Cotton Growers' Special.....	9.00	1.65	3.00
Coon Brand Guano	9.00	.82	3.00
Patapsco Cotton and Tobacco Special.....	8.00	3.29	4.00
Patapsco Plant Food for Tobacco, Potatoes and Truck	8.00	2.47	5.00
Patapsco Gold Leaf C. S. M. Mixture.....	8.00	2.47	3.00
Choctaw Guano	8.00	2.47	3.00
Patapsco Special Tobacco Mixture.....	8.00	2.06	3.00
Unicorn Guano	8.00	2.06	3.00
Planters Favorite	8.00	1.65	2.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Sea Gull Ammoniated Guano.....	8.00	1.65	2.00
Grange Mixture, C. S. M. Base.....	8.00	1.65	2.00
Patapsco 7-7-7 Truck Guano.....	7.00	5.76	7.00
Patapsco Trucker for Early Vegetables.....	7.00	4.11	5.00
Money Maker Guano	7.00	3.70	6.00
Dry Ground Fish	6.00	8.23	....
Patapsco Potato Guano.....	6.00	4.11	7.00
Sulphate of Ammonia .....	....	20.16	....
Nitrate of Soda .....	....	15.00	....
Patapsco Top Dresser .....	....	7.41	3.00
Muriate of Potash.....	....	....	49.00
Sulphate of Potash.....	....	....	48.00
Genuine German Kainit .....	....	....	12.00

Pocahontas Guano Co., Lynchburg, Va.—

Fine Ground Bone Meal.....	23.00	2.47	....
Pure Raw Bone Meal.....	22.00	3.71	....
Carrington's S. C. Phosphate, Waukesha Brand	16.00	....	....
Imperial Dissolved S. C. Phosphate.....	14.00	....	....
Indian Special Grain and Grass Guano.....	12.00	....	5.00
Special Potash Mixture	10.00	....	5.00
Wabash Wheat Mixture	10.00	....	4.00
Carrington's Superior Grain Compound.....	10.00	....	2.00
Pocahontas Special Tobacco Fertilizer.....	9.00	2.47	3.00
High Grade 4 Per Cent Tobacco Compound			
Mohawk King	9.00	1.85	4.00
Yellow Tobacco Special	9.00	1.65	2.00
Standard Tobacco Guano, Old Chief Brand..	9.00	1.65	2.00
Planters' Special	9.00	.82	2.00
Indian Tobacco Grower	8.00	2.47	4.00
Farmers' Favorite Apex Brand.....	8.00	2.47	3.00
Special Truck Grower, Eagle Mount Brand..	8.00	2.06	6.00
Spot Cash Tobacco Compound.....	8.00	2.06	3.00
Truckers' Special	8.00	1.65	6.00
Carrington's Banner Brand Guano.....	8.00	1.65	2.00
A. A. Complete Champion Brand.....	8.00	1.00	3.00
Cherokee Grain Special	8.00	....	4.00
Nitrate of Soda .....	....	15.00	....
Muriate of Potash .....	....	....	49.00
Sulphate of Potash .....	....	....	48.00
Genuine German Kainit .....	....	....	12.00

Planters Cotton Seed Oil Co., Rocky Mount, N. C.—

Acid Phosphate	16.00	....	....
Acid Phosphate	14.00	....	....
J. P. D. Special.....	8.00	3.29	5.00
Gorham H. G.	8.00	3.29	4.00
Tar River Special	8.00	2.47	3.00
Planters' C. S. Oil Co.'s Tobacco Guano.....	8.00	2.47	3.00
Planters' Pride for Cotton.....	8.00	1.65	2.00
Planters' C. S. Oil Co.'s Cotton Guano.....	8.00	1.65	2.00
Planters' Peanut Mixture	8.00	1.21	5.00
Planters' Special Potato Guano.....	7.00	4.12	5.00
Braswell's Excelsior	7.00	3.29	6.00
E. L. D. Special.....	7.00	2.47	3.00
Braswell's Special for Tobacco.....	7.00	2.26	3.50
Planters' Top Dresser	3.50	7.82	3.00
Nitrate of Soda .....	....	15.00	....

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Ground Fish Scrap		8.23	....
Muriate of Potash			50.00
Sulphate of Potash			48.00
Genuine German Kainit			12.00

Piedmont-Mt. Airy Guano Co., Baltimore, Md.—

Piedmont Bone Meal	Total	21.00	3.29	
Piedmont 16 Per Cent Acid Phosphate.....		16.00	....	....
Piedmont 14 Per Cent Acid Phosphate.....		14.00	....	....
Piedmont Special Potash Mixture.....		10.00	....	5.00
Levering's Potashed Bone		10.00	....	4.00
Piedmont Farmers' Bone and Potash.....		10.00	....	2.00
Piedmont Farmers' Standard		9.00	1.65	2.00
Piedmont Essential Tobacco Compound.....		9.00	1.65	2.00
Levering's Ammoniated Bone		9.00	.82	3.00
Piedmont Unexcelled Guano		8.00	3.29	4.00
Piedmont Special Tobacco Guano.....		8.00	2.47	4.00
Piedmont High Grade Ammoniated Bone and Potash		8.00	2.47	3.00
Levering's Reliable Tobacco Guano.....		8.00	2.47	3.00
Piedmont Guano for Tobacco.....		8.00	2.06	3.00
Piedmont Guano for All Crops.....		8.00	2.06	3.00
Levering's Standard		8.00	1.65	3.00
Piedmont Bone and Peruvian Mixture.....		8.00	1.65	2.00
Piedmont Special for Cotton, Corn and Pea- nuts		8.00	1.65	2.00
Piedmont Cultivator Brand		8.00	1.65	2.00
Piedmont Red Leaf Tobacco Guano.....		8.00	1.65	2.00
Piedmont Farmers' Favorite		8.00	.82	4.00
Piedmont Star Bone and Potash.....		8.00	....	5.00
Piedmont 7-7-7 Truck Guano.....		7.00	5.76	7.00
Piedmont 5-7-5 Guano		7.00	4.12	5.00
Piedmont Special Truck Fertilizer.....		6.00	5.75	7.00
Piedmont Special Potato Guano.....		6.00	4.94	7.00
Piedmont Early Vegetable Manure.....		6.00	4.12	7.00
Piedmont Early Trucker		6.00	4.12	5.00
Piedmont Vegetable Compound		6.00	3.29	8.00
Piedmont 7 Per Cent Truck Guano.....		5.00	5.76	3.00
Piedmont Potato Producer		5.00	2.47	6.00
Nitrate of Soda .....		....	15.23	....
Boykin's Top Dresser .....		....	7.41	3.00
Muriate of Potash .....		....	....	50.00
Sulphate of Potash .....		....	....	48.00
German Kainit .....		....	....	12.00

The Quinnepiac Co., Charleston, S. C.—

Standard Quinnepiac Acid Phosphate.....	13.00	....	....
Standard Quinnepiac Pine Island Ammoniated Superphosphate	9.00	1.85	1.00

The Robertson Fertilizer Co., Norfolk, Va.—

Robertson's Raw Bone Meal.....	Total	21.00	3.71	....
High Peak Acid Phosphate.....		16.00	....	....
Scepter Brand Acid Phosphate.....		14.00	....	....
P. M. C. Acid Phosphate.....		13.00	....	....
J. W. S. Special Bone and Potash Mixture...		12.00	....	5.00
J. W. S. Alkaline Bone.....		10.00	....	5.00
Skyscraper Bone and Potash Compound.....		10.00	....	4.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Level Run Dissolved Bone and Potash.....	10.00	....	2.00
Dodson's Choice H. G. Complete Manure.....	9.00	2.47	3.00
Robertson's 2 $\frac{3}{4}$ -9-2 Guano	9.00	2.26	2.00
Beaver Brand Soluble Guano.....	9.00	1.85	4.00
Robertson's Blood and Bone Mixture.....	9.00	1.00	2.00
P. M. C. High Grade Soluble Guano.....	8.00	4.12	7.00
J. W. S. Special Tobacco Guano.....	8.00	3.30	7.00
Wood's Winner H. G. Guano.....	8.00	3.30	4.00
Robertson's Soluble H. G. Manure.....	8.00	2.47	4.00
Old Kentucky High Grade Tobacco Manure..	8.00	2.47	3.00
Robertson's Special Formula for Tobacco....	8.00	2.47	3.00
Big Cropper High Grade Guano.....	8.00	2.47	3.00
Robertson's X-(T Ray) Tobacco Grower....	8.00	2.06	2.00
Robertson's Star Guano	8.00	1.65	5.00
Double Dollar Soluble Guano.....	8.00	1.65	2.00
Ten Strike Soluble Crop Grower.....	8.00	1.00	4.00
M. C. Special Bone and Potash Mixture.....	8.00	....	4.00
Robertson's 5 Per Cent Guano.....	7.00	4.12	5.00
Robertson's 7 Per Cent for Truck.....	6.00	5.77	5.00
Robertson's 5-6-7	6.00	4.12	7.00
Robertson's Tobacco Compound	4.00	3.30	6.00
Robertson's 10 Per Cent Truck Guano.....	2.00	8.25	2.00
Nitrate of Soda .....	....	14.85	....
Blood .....	....	13.20	....
Genuine German Kainit .....	....	....	12.00

F. S. Royster Guano Co., Norfolk, Va.—

Pure Raw Bone Meal.....Total	21.50	3.71	....
Arrow Brand Thomas Phosphate.....Total	18.00	....	....
Royster's H. G. 17 Per Cent Acid Phosphate..	17.00	....	....
Royster's H. G. 16 Per Cent Acid Phosphate..	16.00	....	....
Royster's 14 Per Cent Acid Phosphate.....	14.00	....	....
Royster's Dissolved Bone	13.00	....	....
Royster's 12 and 5 Bone and Potash Mixture.	12.00	....	5.00
Royster's XX Acid Phosphate.....	12.00	....	....
Royster's 11 and 5 Bone and Potash Mixture.	11.00	....	5.00
Royster's Cotton Special	10.00	3.30	4.00
Seminole High Grade Fertilizer.....	10.00	2.47	3.00
Royster's Special Formula "B".....	10.00	2.47	1.00
Royster's Soluble Guano	10.00	1.65	2.00
Haywood County Special Guano.....	10.00	.82	3.00
Royster's 10 and 6 Bone and Potash Mixture.	10.00	....	6.00
Royster's 10 and 5 Bone and Potash Mixture.	10.00	....	5.00
Royster's 10 and 4 Bone and Potash Mixture.	10.00	....	4.00
Royster's Bone and Potash for Grain.....	10.00	....	3.00
Royster's Bone and Potash Mixture.....	10.00	....	2.00
M. P. F. Mixture.....	9.50	3.30	5.00
Royster's 4-9-5 Special	9.00	3.30	5.00
Royster's Special Formula	9.00	2.47	5.00
Tomlinson's Special	9.00	2.47	5.00
Royster's Three Nine Four Special.....	9.00	2.47	4.00
Surry Special Tobacco Grower.....	9.00	2.47	3.00
Piedmont Special Cotton Grower.....	9.00	2.47	3.00
Royster's Meal Mixture	9.00	2.26	2.00
Royster's Cotton Grower	9.00	2.26	2.00
Viking Ammoniated Guano	9.00	1.65	3.00
Special Compound	9.00	1.65	1.00
Royster's Grain Guano	9.00	.82	3.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Royster's Special 1-9-2 Guano.....	9.00	.82	2.00
H. B. & Co.'s Special.....	8.00	4.69	10.00
Royster's Supreme Tobacco Guano.....	8.00	3.71	7.00
Royster's Best Guano	8.00	3.71	7.00
Cobb's High Grade for Tobacco.....	8.00	3.30	5.00
Trucker's Delight	8.00	3.30	4.00
Jupiter High Grade Guano.....	8.00	3.30	4.00
Royster's H. G. Special Tobacco Guano.....	8.00	3.30	4.00
Milo Tobacco Guano	8.00	3.30	4.00
Royster's Special 4-8-3 Guano.....	8.00	3.30	3.00
Gorham's Special	8.00	3.30	2.50
Eagle's Special Tobacco Guano.....	8.00	2.47	5.00
Marlboro High Grade Cotton Grower.....	8.00	2.47	3.00
Bonanza Tobacco Guano	8.00	2.47	3.00
Royster's Special Sweet Potato Guano.....	8.00	2.47	3.00
Royster's 8-3-1 Special	8.00	2.47	1.00
Royster's Special 8-2 $\frac{3}{4}$ -4 for Tobacco.....	8.00	2.26	4.00
Orinoco Tobacco Guano	8.00	2.06	3.00
Special Tobacco Compound	8.00	2.06	2.00
Royster's Special Wheat Fertilizer.....	8.00	1.65	2.00
Royster's Complete Guano	8.00	1.65	2.00
Farmers' Bone Fertilizer	8.00	1.65	2.00
Webb's Korn King	8.00	1.65	2.00
Farmers' Bone Fertilizer for Tobacco.....	8.00	1.65	2.00
Jumbo Peanut Grower	8.00	1.02	4.00
Royster's 8 and 4 Bone and Potash Mixture..	8.00	....	4.00
Graves' Special Formula	7.40	3.91	9.65
Battle's Favorite	7.25	3.91	5.25
Royster's Special 7 Per Cent Truck Guano...	7.00	5.77	7.00
Royster's Early Truck Guano.....	7.00	4.12	8.00
Royal Special Potato Guano.....	7.00	4.12	7.00
Royal Potato Guano	7.00	4.12	5.00
Royster's 7 and 5 Bone and Potash Mixture..	7.00	....	5.00
Royster's Peanut Special	7.00	....	5.00
Arrow Potato Guano	6.00	5.77	5.00
Royster's Irish Potato Guano.....	6.00	4.12	7.00
Yellow Bark Sweet Potato Guano.....	6.00	4.12	7.00
Royster's Special 5-6-5	6.00	4.12	5.00
Pasquotank Potato Guano	6.00	3.30	8.00
Royster's Tobacco Manure	6.00	3.30	7.00
Royster's Special Formula "F".....	6.00	3.30	6.00
Oakley's Special Tobacco Guano.....	6.00	3.30	4.00
Royster's 6-3-6 Special	6.00	2.47	6.00
Royster's 2-6-5 Special	6.00	1.65	5.00
Royster's Special Formula "H".....	5.90	4.03	7.50
Wiggins' Special	5.50	3.30	3.00
Royster's Special 10 Per Cent Truck Guano..	5.00	8.24	3.00
Royster's Cabbage Guano	5.00	8.24	2.50
Harvey's Cabbage Guano	5.00	6.59	3.00
Royster's Potato Guano	5.00	4.94	7.00
Royster's Special 20 Per Cent Plant Food....	5.00	4.12	10.00
Phillips' Special	5.00	1.65	6.00
Royster's Ground Fish Scrap.....	4.00	8.24	....
Presto Top Dresser	4.00	8.22	4.00
Royster's Special Top Dresser.....	4.00	6.18	2.50
Royster's 4-6-4 Special	4.00	4.94	4.00
Royster's Special 4-4-4	4.00	3.30	4.00
Currituck Sweet Potato Guano.....	4.00	2.47	8.00
Tankage	3.50	9.05	....

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Royster's Ground Fish Scrap	3.00	8.22	....
Royster's 10-2-5 Top Dresser.....	2.00	8.22	5.00
Nitrate of Soda .....	....	15.22	....
Royster's 10-4 Top Dresser.....	....	8.22	4.00
Magic Top Dresser .....	....	7.42	3.00
Sulphate of Potash .....	....	....	48.00
Muriate of Potash .....	....	....	48.00
Manure Salts .....	....	....	20.00
Genuine German Kainit .....	....	....	12.00

Robersonville Guano Co., Robersonville, N. C.—

Roberson's H. G. Acid Phosphate.....	16.00		
Roberson's H. G. Tobacco Grower.....	8.00	2.47	3.00
Roberson's H. G. Meal and Fish Guano.....	8.00	2.47	3.00
Roberson's H. G. Cotton Grower.....	8.00	2.47	3.00
Roberson's Special 7-7-7 Potato Grower.....	7.00	5.77	7.00
Roberson's H. G. Truck Guano.....	7.00	4.12	5.00
Roberson's 7 Per Cent Potato Guano.....	6.00	5.77	5.00
Robersonville H. G. Top Dresser.....	4.00	8.23	3.00
Sulphate of Ammonia .....	....	20.50	....
Nitrate of Soda .....	....	15.60	....
Dried Blood .....	....	13.62	....
Fish Scrap .....	....	8.00	....
Muriate of Potash .....	....	....	50.00
Sulphate of Potash .....	....	....	48.00
Roberson's Genuine German Kainit.....	....	....	12.00

Robeson Manufacturing Co., Lumberton, N. C.—

Eureka	10.00	3.30	5.00
Stanby	8.00	3.30	4.00
Gold Dollar	8.00	3.30	4.00
Globe C. S. M. Guano.....	8.00	2.47	5.00
Silver Dollar	8.00	2.47	3.00
Cottonade	8.00	2.47	3.00
Robeson's Special	8.00	1.65	3.00
Homerun Top Dresser	3.00	6.58	5.00
Genuine German Kainit .....	....	....	12.00

Richmond Guano Co., Richmond, Va.—

Pure Animal Bone	25.00	2.47	....
Pure Raw Bone Meal.....Total	22.50	3.50	....
Rex Dissolved Bone Phosphate.....	16.00	....	....
High Grade Acid Phosphate.....	14.00	....	....
Premium Bone and Potash Mixture.....	13.00	....	3.00
Premium Dissolved Bone	13.00	....	....
Premium Corn Special	12.00	1.00	2.00
Premium Wheat Special	12.00	1.00	2.00
H. G. Bone and Potash.....	12.00	....	5.00
Regal Bone and Potash Mixture.....	12.00	....	4.00
Old Homestead Dissolved Bone.....	12.00	....	....
Dissolved S. C. Phosphate.....	12.00	....	....
Premium Corn Grower	10.00	.82	1.00
Bone Mixture	10.00	.82	1.00
Johnson's Best Bone and Potash.....	10.00	....	5.00
Rex Bone and Potash Mixture.....	10.00	....	4.00
Bone and Potash Mixture.....	10.00	....	2.00
Sanders' Special Formula for Bright Tobacco.	9.00	2.88	5.00
Collins' Special Fertilizer	9.00	2.47	2.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Carolina Cotton Grower	9.00	2.26	2.00
Burton's Special Tobacco Fertilizer.....	9.00	2.06	3.00
C. & B.'s Best Fertilizer.....	9.00	1.65	3.00
Bumper Crop Ammoniated Guano.....	9.00	1.65	3.00
Lowery's Special Fertilizer	9.00	1.65	3.00
Cracker Jack Fertilizer	9.00	1.65	2.00
Bone Mixture	9.00	1.65	1.00
Premium Cotton Grower	9.00	.82	3.00
Premium Wheat Grower	9.00	.82	2.00
Premium Crop Grower	9.00	.82	2.00
Southern Trucker	8.00	4.11	5.00
Special Fertilizer	8.00	3.29	6.00
Perfection Special	8.00	3.29	4.00
Beeson's Best Fertilizer	8.00	2.47	10.00
Carolina Bright Tobacco Fertilizer.....	8.00	2.47	3.00
Gilt Edge Fertilizer	8.00	2.47	3.00
Gilt Edge Tobacco Fertilizer.....	8.00	2.47	3.00
Carolina Bright Special Tobacco Fertilizer..	8.00	2.26	2.50
Tip Top Tobacco Fertilizer.....	8.00	2.06	3.00
Tip Top Fertilizer	8.00	2.06	3.00
Carolina Bright for Cotton.....	8.00	2.06	1.50
Special Premium Brand for Tobacco.....	8.00	1.85	2.25
Special Premium Brand for Plants.....	8.00	1.85	2.25
Beeson's Favorite Fertilizer	8.00	1.65	10.00
Beeson's Special Fertilizer	8.00	1.65	6.00
Rex Tobacco Fertilizer	8.00	1.65	4.00
Rex Ammoniated Crop Grower.....	8.00	1.65	3.00
Premium Cotton Fertilizer	8.00	1.65	2.00
Premium Tobacco Fertilizer	8.00	1.65	2.00
Premium Brand Fertilizer	8.00	1.65	2.00
Edgecombe Cotton Grower	8.00	1.65	2.00
Premium Grain Special	8.00	.82	4.00
Premium Peanut Special	8.00	.82	4.00
Premium Peanut Grower	8.00	....	4.00
Tip Top Bone and Potash Mixture.....	8.00	....	4.00
Winter Grain and Grass Grower.....	8.00	....	4.00
Clark's Special Formula	7.00	4.94	6.00
Special High Grade for Truck.....	7.00	4.94	5.00
10 Per Cent Cabbage Guano.....	6.00	8.23	2.00
Smith's 7 Per Cent Special.....	6.00	5.76	5.00
Edwards' Prolific Cotton Grower.....	6.00	3.29	4.00
Gilt Edge Top Dresser.....	4.00	8.23	4.00
Premium Top Dresser	4.00	6.17	2.50
Carter's Special for Tobacco.....	4.00	2.47	6.00
Smith's Special Fertilizer	4.00	1.65	7.00
Sulphate of Ammonia .....	....	19.75	....
Nitrate of Soda .....	....	15.63	....
Special Top Dresser .....	....	7.40	3.00
Muriate of Potash .....	....	....	50.00
Sulphate of Potash .....	....	....	48.00
High Grade German Potash.....	....	....	16.00
Pure German Kainit .....	....	....	12.00

Rhum Phosphate Mining Co., Mount Pleasant, Pa.—

Ground Phosphate Rock	Total	28.00		
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Red Cross Guano Co., Lynchburg, Va.—

Pure Raw Bone Meal.....	Total	22.00	3.71	
Red Cross Bone Meal.....	Total	22.00	3.00	

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Red Cross H. G. Phosphate.....	16.00	....	....
Red Cross Standard Phosphate.....	14.00	....	....
Red Cross Grain Grower.....	10.00	....	4.00
Red Cross Bone and Potash.....	10.00	....	2.00
Red Cross High Grade for Tobacco.....	9.00	2.47	3.00
Red Cross for Tobacco and Truck.....	9.00	1.85	4.00
Red Cross for Bright Tobacco.....	9.00	1.65	2.00
Red Cross Special for Tobacco.....	8.00	2.47	3.00
Red Cross Tobacco Guano.....	8.00	2.06	3.00
Red Cross Crop Grower.....	8.00	1.65	2.00
Red Cross Grain and Grass Special.....	8.00	1.00	3.00

Rasin-Monumental Co., Baltimore, Md.—

Rasin 16 Per Cent Acid Phosphate.....	16.00		
Rasin 14 Per Cent Acid Phosphate.....	14.00	....	....
Rasin 13 Per Cent Acid Phosphate.....	13.00	....	....
Rasin H. G. Bone and Potash.....	12.00	....	5.00
Rasin's 10-4-4.....	10.00	3.30	4.00
Rasin's 10-4-4.....	10.00	3.30	4.00
Rasin Seawell Alkaline Phosphate.....	10.00	....	6.00
Rasin Special Bone and Potash.....	10.00	....	5.00
Rasin's 10-4 Bone and Potash.....	10.00	....	4.00
Rasin Bone and Potash.....	10.00	....	2.00
Rasin's Dixie Cotton Guano.....	9.00	2.26	2.00
Rasin's Dixie Cotton Guano.....	9.00	2.26	2.00
Rasin's 9-2-3.....	9.00	1.65	3.00
Rasin Dixie Guano.....	9.00	1.65	2.00
Rasin's 9-82-3.....	9.00	.82	3.00
Baltimore Special Mixture.....	9.00	.82	2.00
Victoria Guano.....	8.00	3.30	4.00
Rasin H. G. Guano.....	8.00	3.29	4.00
Victoria Guano.....	8.00	3.20	4.00
Cotton Compound.....	8.00	2.47	3.00
Rasin's Complete Fertilizer.....	8.00	2.47	3.00
Cotton Compound.....	8.00	2.47	3.00
Rasin's Indian Brand for Tobacco.....	8.00	2.47	3.00
Rasin Gold Standard.....	8.00	2.47	3.00
Rasin Complete Fertilizer.....	8.00	2.47	3.00
Rasin Special Fertilizer.....	8.00	2.06	3.00
Rasin's General Tobacco Grower.....	8.00	2.06	3.00
Rasin's 8-2-2.....	8.00	1.65	2.00
Rasin's 8-2-2.....	8.00	1.65	2.00
Rasin Empire Guano.....	8.00	1.65	2.00
Rasin Irish Potato Special.....	7.00	3.29	8.00
Rasin Truckers' Mixture.....	6.00	5.77	5.00
Nitrate of Soda.....	....	14.82	....
Muriate of Potash.....	....	....	48.00
Sulphate of Potash.....	....	....	48.00
Rasin Genuine German Kainit.....			12.00

Rowe Bros. & Co., Hampton, Va.—

Ground Crab Scrap.....	3.25	4.92	
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Read Phosphate Co., Charleston, S. C.—

Read's H. G. Dissolved Bone.....	16.00		
Read's H. G. Acid Phosphate.....	14.00		
Read's Bone and Potash.....	10.00	....	4.00
Read's Alkaline Bone.....	10.00	....	2.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Read's Manipulated Guano	9.00	1.65	3.00
Read's Ammoniated Dissolved Bone	8.00	3.30	6.00
Read's H. G. Guano	8.00	3.30	4.00
Read's H. G. Tobacco Leaf.....	8.00	2.47	3.00
Read's H. G. Cotton Grower.....	8.00	2.47	3.00
Read's Soluble Fish Guano	8.00	1.65	2.00
Read's Blood and Bone Fertilizer, No. 1....	8.00	1.62	2.00
Read's Special Potash Mixture	8.00	....	4.00
Read's Fish and Blood Mixture.....	7.00	3.30	5.00
Nitrate of Soda .....	....	19.00	....
Muriate of Potash .....	....	....	48.00
German Kainit .....	....	....	12.00

Reidsville Fertilizer Co., Reidsville, N. C.—

Reidsville Acid	16.00		
Acid and Potash	14.00	....	3.00
Gold Standard Tobacco Guano.....	10.00	2.47	5.00
Williams' Special Guano	10.00	2.00	2.00
Pride of Reidsville Guano.....	10.00	1.65	3.00
Harvest King	10.00	.82	4.00
Acid and Potash	10.00	....	4.00
Bone and Potash	10.00	....	4.00
Bone and Potash	10.00	....	2.00
Acid and Potash	10.00	....	2.00
Lion Brand Fertilizer	9.00	2.47	6.00
Money Maker Fertilizer	9.00	2.47	3.00
Reidsville Hustler	9.00	.82	2.00
Reidsville 4-8-4	8.00	3.31	4.00
Reidsville Best	8.00	3.30	8.00
Farmers Tobacco Fertilizer	8.00	2.47	3.00
Royal Fertilizer	8.00	2.47	3.00
Plant Bed Special	8.00	2.47	1.00
Climax Fertilizer	8.00	2.06	3.00
Broad Leaf Tobacco Guano.....	8.00	1.85	2.50
Banner Fertilizer	8.00	1.65	2.00
Champion Guano	8.00	1.65	2.00
Reidsville Champion	8.00	1.65	2.00
J. H. Burton's Special.....	8.00	.82	3.00
Bone and Potash	8.00	....	4.00
Acid and Potash	8.00	....	4.00
Silver Leaf Tobacco Special.....	7.00	2.88	5.00
Reidsville Top Dresser	5.00	4.94	1.75

*Swift Fertilizer Works, Atlanta, Ga., Wilmington,
N. C., and Chester, S. C.—*

Swift's Raw Bone Meal	Total	23.00	3.70	
Swift's Pure Bone Meal	Total	23.00	2.47	....
Swift's Fish Scrap High Grade		17.40	9.75	....
Swift's Special		16.00	....	....
Swift's Cultivator		14.00	....	....
Swift's Harrow		13.00	....	....
Swift's North Carolina Special		12.00	1.65	2.00
Swift's Special		12.00	....	6.00
Swift's Atlanta		12.00	....	4.00
Swift's Chattahoochee		12.00	....	....
Swift's Farmers' Special		10.00	3.29	4.00
Swift's Special High Grade Guano.....		10.00	3.29	3.00
Swift's Corn and Cotton Grower.....		10.00	2.47	3.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Swift's Eagle	10.00	1.65	2.00
Swift's Planters' Special	10.00	.82	3.00
Swift's Plow Boy	10.00	.82	1.00
Swift's Atlanta	10.00	....	5.00
Swift's Farmer's Home	10.00	....	4.00
Swift's Field and Farm	10.00	....	2.00
Swift's Wheat Grower	10.00	....	2.00
Swift's Special	9.50	4.12	3.00
Swift's Blood, Bone and Potash.....	9.50	3.29	7.00
Swift's Champion	9.00	2.47	4.00
Swift's Special Cotton Grower	9.00	2.47	3.00
Swift's Cotton King	9.00	2.47	2.00
Swift's Special Cotton Guano	9.00	2.26	2.00
Swift's Gold Medal	9.00	1.65	3.00
Swift's Farmer's Favorite	9.00	1.65	3.00
Swift's Cotton Plant	9.00	1.65	1.00
Swift's Special Formula	9.00	.82	2.00
Swift's Cape Fear	8.00	4.12	3.00
Swift's Special Tobacco Grower High Grade.	8.00	3.29	6.00
Swift's Majestic for Tobacco High Grade....	8.00	3.29	4.00
Swift's Monarch	8.00	3.29	4.00
Swift's Majestic	8.00	3.29	4.00
Swift's Quick Growth Tobacco Fertilizer....	8.00	3.29	2.00
Swift's Strawberry Grower	8.00	2.47	10.00
Swift's Piedmont Tobacco Grower	8.00	2.47	6.00
Swift's Carter's Prolific	8.00	2.47	4.00
Swift's Carolina Tobacco Grower	8.00	2.47	3.00
Swift's Ruralist	8.00	2.47	3.00
Swift's Plow Boy	8.00	2.47	3.00
Swift's Gold Leaf Tobacco Grower.....	8.00	2.06	3.00
Swift's Gold Leaf Tobacco Grower.....	8.00	2.06	3.00
Swift's Braswell Formula	8.00	2.06	2.50
Swift's Sumatra Tobacco Grower	8.00	2.06	2.00
Swift's Bright Leaf Tobacco Grower.....	8.00	1.65	5.00
Swift's Pioneer Tobacco Grower	8.00	1.65	4.00
Swift's Clark's Special Cotton Grower.....	8.00	1.65	3.00
Swift's Red Steer	8.00	1.65	2.00
Swift's Golden Harvest	8.00	1.65	2.00
Swift's Thompson's Special	8.00	.82	5.00
Swift's Special Peanut Grower	8.00	.82	4.00
Swift's Plantation	8.00	....	4.00
Swift's Carolina 7 Per Cent Special Trucker.	7.00	5.76	7.00
Swift's Special Irish Potato Grower.....	7.00	4.12	8.00
Swift's Potato Grower	7.00	4.12	7.00
Swift's Early Trucker	7.00	4.12	5.00
Swift's Special High Grade	7.00	3.29	5.00
Swift's Special High Grade Guano.....	7.00	3.29	5.00
Swift's Special Trucker	6.00	5.76	5.00
Swift's Favorite Truck Guano	6.00	4.94	6.00
Swift's Special Potato Grower	6.00	4.12	7.00
Swift's Special Tobacco Grower	6.00	3.29	6.00
Swift's Special 10 Per Cent Blood and Bone Trucker	5.00	8.23	3.00
Swift's Superior Top Dresser	5.00	8.23	3.00
Swift's Plant Bed Tobacco Fertilizer.....	5.00	6.58	2.00
Swift's Fruiter Top Dresser	5.00	4.94	2.50
Swift's No. 1 Ground Tankage.....	4.50	8.24	....
Swift's Special Top Dresser	4.00	8.23	4.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Swift's Excelsior Top Dresser	4.00	6.18	2.00
Swift's Everett's Special Formula	4.00	3.29	3.00
Swift's No. 1 Grade Tankage.....	3.50	9.06	....
Swift's Pure Nitrate of Soda .....	....	14.82	....
Swift's Ground Dried Blood .....	....	13.18	....
Swift's Special Top Dresser.....	....	8.23	4.00
Swift's Special Top Dresser .....	....	7.40	4.00
Swift's Nitrogen and Potash, No. 1.....	....	7.40	3.00
Swift's Nitrogen and Potash, No. 2.....	....	6.58	4.00
Swift's Cotton-seed Meal High Grade.....	....	6.18	....
Swift's Muriate of Potash .....	....	....	50.00
Swift's Sulphate of Potash .....	....	....	49.00
Swift's Pure German Kainit .....	....	....	16.00
Swift's Pure German Kainit .....	....	....	12.00

Southern Chemical Co., Inc., Roanoke, Va.—

Pride of Virginia	8.00	2.47	3.00
Valley Queen	8.00	1.65	10.00
Farmer's Joy	8.00	1.65	4.00
Our Favorite	8.00	1.65	2.00

Spartanburg Fertilizer Co., Spartanburg, S. C.—

16 Per Cent Acid Phosphate.....	16.00	....	....
14 Per Cent Acidulated Phosphate.....	14.00	....	....
West's Potash Acid	13.00	....	3.00
13-3 Potash Acid	13.00	....	3.00
Staff of Life	12.50	.82	3.00
Nitro Blood	12.00	1.65	2.50
12-6	12.00	....	6.00
Wheat Formula	11.00	1.23	5.00
Gosnell's Plant Food	10.50	2.46	2.00
N. C. Special	10.50	1.65	8.00
Corn Formula	10.50	1.65	5.00
King Tiger	10.00	1.65	3.00
10-4	10.00	....	4.00
Dana's Best	10.00	....	4.00
Melrose	10.00	....	2.00
10-2	10.00	....	2.00
Hummer	9.00	1.65	3.00
Boll Buster	9.00	1.65	2.00
Grain Compound	9.00	1.65	2.00
Tiger Brand	9.00	.82	3.00
Unaka	8.00	3.29	4.00
Glencoe	8.00	2.46	3.00
I. X. L. Plant Food.....	8.00	1.65	2.00
Corn Grower	8.00	1.65	2.00
Corn Maker	8.00	1.65	2.00
Corn King	8.00	1.65	2.00
C. C. & O. Special.....	8.00	1.65	2.00
Potato Guano	7.00	2.46	7.00
Sulphate Ammonia .....	....	20.65	....
Nitrate of Soda .....	....	14.81	....
Muriate of Potash .....	....	....	48.00
Kainit .....	....	....	12.00

Scotland Neck Guano Co., Scotland Neck, N. C.—

Our 16 Per Cent Acid Phosphate.....	16.00	....	....
Our Bone and Potash Mixture.....	10.00	....	4.00
Biggs' H. G. Truck Guano.....	8.00	4.12	5.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Noah Biggs C. S. M. and Fish Scrap Guano..	8.00	3.30	4.00
State Farm C. S. M. and Fish Scrap Tobacco Guano	8.00	2.47	3.00
Carolina C. S. M. and Fish Scrap Guano.....	8.00	2.47	3.00
Farmers' C. S. M. and Fish Scrap Guano....	8.00	2.06	2.50
Our Special C. S. M. Guano.....	8.00	1.65	2.00
Johnson's Special Potato Guano	7.00	5.77	7.00
Our Best Peanmt Guano	5.50	1.23	5.50
K. Elite Top Dressing	3.00	7.40	3.50
Nitrate of Soda .....	....	15.50	....
Noah Biggs Top Dresser .....	....	7.46	4.00
Our Gennine German Kainit.....	....	....	12.00

L. A. Stoney, Raleigh, N. C.—

"Out of Sight"	14.00	....	....
"Up Early"	12.00	....	4.00
"Ace of Trumps"	10.00	2.41	2.00
"More-to-Bac" Special "Up to Snuff".....	8.00	3.30	4.25
"Get There"	8.00	3.28	3.00
"Old \$ Bill"	6.75	4.72	5.00
"Hoe Cake"	6.50	4.93	4.50
"On the Spot"	5.50	5.75	5.00
"I Win"	4.00	5.75	9.00

The Southern Exchange Co., Marton, N. C.—

S. E. C. Acid Phosphate.....	16.00	....	....
S. E. C. Acid Phosphate.....	14.00	....	....
S. E. C. Bone and Potash Mixture.....	10.00	....	4.00
S. E. C. Bone and Potash Mixture.....	10.00	....	2.00
Juicy Fruit Fertilizer	9.00	1.85	4.00
The Walnut Fertilizer	8.50	2.06	2.50
Melon Grower	8.00	4.11	7.00
McKinnon's Special Truck Formula.....	8.00	4.11	7.00
Two Fours Guano	8.00	3.29	4.00
Southern Exchange Co.'s Bright Tobacco Formula	8.00	2.47	4.00
That Big Stick Guano.....	8.00	2.47	4.00
Bull of the Woods Fertilizer.....	8.00	2.47	4.00
Marietta Supply Co.'s Best.....	8.00	2.47	3.00
Jack's Best Fertilizer	8.00	2.47	3.00
Correct Cotton Compound	8.00	2.47	3.00
R. M. C. Special Crop Grower.....	8.00	2.47	3.00
Clark's Special Compound	8.00	1.65	3.00
Southern Exchange Co.'s Special Tobacco Fer- tilizer	8.00	1.65	3.00
Currie Crop Lifter	8.00	1.65	3.00
The Racer Guano	8.00	1.65	3.00
The Coon Guano	8.00	1.65	2.00
The Southern Exchange Co.'s Top Dresser...	4.00	8.23	2.00
Nitrate of Soda .....	....	15.00	....
Muriate of Potash .....	....	....	49.00
Genuine German Kainit .....	....	....	12.00

H. T. Shannonhouse, Hertford, N. C.—

Acid Phosphate	16.00	....	....
Full Value	8.00	3.29	4.00
Sunny South	8.00	2.47	3.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Southern Pride	8.00	2.47	3.00
Carolina's Choice	8.00	2.47	3.00
Square Deal	8.00	1.65	2.00
Farmers' Money Maker	8.00	1.65	2.00
High Grade	6.00	4.11	5.00
Genuine German Kainit .....	....	....	12.00

*The Southern Cotton Oil Co., Concord, Davidson,
Shelby, Gibson, Monroe, and Wadesboro—*

Southern Cotton Oil Co.'s 16 Per Cent Acid			
Phosphate	16.00	....	....
Gold Seal Acid Phosphate.....	14.00	....	....
Silver King Acid Phosphate.....	13.00	....	....
Conqueror Bone and Potash.....	10.00	....	4.00
Magnolia Bone and Potash.....	10.00	....	2.00
Uncle Sam	9.00	2.47	3.00
Home Made	9.00	2.05	3.00
Razem	9.00	1.65	3.00
King Bee	9.00	1.65	2.00
Choice	8.00	3.30	6.00
Conqueror	8.00	3.30	4.00
Canto	8.00	3.29	6.00
Melonite	8.00	3.29	4.00
Peacock	8.00	2.47	3.00
Moon	8.00	2.47	3.00
Landsake	8.00	2.47	2.50
Red Bull	8.00	2.06	2.00
All-to-Good	8.00	2.05	3.00
Gloria	8.00	1.65	2.00
Double Two	8.00	1.65	2.00
Dandy Top Dresser	4.00	9.07	2.50
Peerless Top Dresser	4.00	6.17	2.50
Nitrate of Soda .....	....	15.00	....
Nitrate of Soda .....	....	13.20	....
Labi .....	....	8.99	17.00
Muriate of Potash .....	....	....	48.00
Sulphate of Potash .....	....	....	48.00
Genuine German Kainit			12.00

Southern Cotton Oil Co., Dillon, N. C.—

Cottingham's Choice	7.00	2.47	5.00
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*Southern Cotton Oil Co., Spartanburg and Green-
ville, S. C.—*

S. C. O. Co.'s H. G. D. B.	16.00		
Golden Fleece H. G. A. P.	14.00		
The Boss	10.00	3.29	4.00
Spartan Favorite H. G.	10.00	2.47	4.00
S. C. O. Co.'s No. 1024.....	10.00	1.65	4.00
Quick Step Acid with Potash.....	10.00	....	4.00
Palmetto Acid with Potash.....	10.00	....	2.00
Pride of the South	9.00	2.47	3.00
Spartan Hustler	9.00	1.65	3.00
Palmetto Standard	9.00	1.65	2.00
Sunrise High Grade	8.00	4.11	7.00
Quick Step H. G.	8.00	3.29	4.00
S. C. O. Co.'s No. 835.....	8.00	2.47	5.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Golden Fleece H. G.	8.00	2.47	3.00
Standard Grain Grower	8.00	.85	4.00
S. C. O. Co.'s Acid with Potash	8.00	....	4.00
Big Ear Corn	7.50	2.47	5.50
A-Corn	7.50	2.06	3.00
S. C. O. Co.'s Top Dresser	4.00	6.18	4.00
S. C. O. Co.'s Nitrate of Soda ....	....	14.82	....
S. C. O. Co.'s Muriate of Potash ....	....	....	48.00
S. C. O. Co.'s German Kainit ....	....	....	12.00

Southern Cotton Oil Co., Charlotte, N. C.—

Bennett's High Grade Fertilizer.....	9.00	3.29	4.00
Adams Favorite	9.00	2.47	4.50
Special Grain Grower	9.00	.82	3.00
Special Ash Element	8.50	....	3.50
Lathan & Richardson's Cotton and Corn Fer- tilizer	8.00	2.47	3.00
Harrell Bros. & Co. Cotton and Corn Fertilizer	8.00	2.47	3.00
Marsh Bros. Cotton and Corn Fertilizer.....	8.00	2.47	3.00
David Ross Co. Cotton and Corn Fertilizer....	8.00	2.47	3.00
Coöperative Mercantile Co. Cotton and Corn Fertilizer	8.00	2.47	3.00
J. L. Austin & Co.'s Cotton and Corn Fertilizer	8.00	2.47	3.00
Collins & Biggers' Cotton and Corn Fertilizer.	8.00	2.47	3.00
Gordon & Presson's Cotton and Corn Fertilizer	8.00	2.47	3.00
T. C. Lee & Co.'s Cotton and Corn Fertilizer..	8.00	2.47	3.00
S. B. Hart's Cotton and Corn Fertilizer.....	8.00	2.47	3.00
Lathan & Richardson's Cotton and Corn Fer- tilizer	8.00	1.65	2.00
T. C. Lee & Co. Cotton and Corn Fertilizer...	8.00	1.65	2.00
Gordon & Presson's Cotton and Corn Fertilizer	8.00	1.65	2.00
S. B. Hart's Cotton and Corn Fertilizer.....	8.00	1.65	2.00
Collins & Biggers' Cotton and Corn Fertilizer.	8.00	1.65	2.00
Coöperative Merchants Co.....	8.00	1.65	2.00
Marsh Bros.' Cotton and Corn Fertilizer.....	8.00	1.65	2.00
David Ross Co. Cotton and Corn Fertilizer...	8.00	1.65	2.00
J. L. Austin & Co. Cotton and Corn Fertilizer.	8.00	1.65	2.00
Harrell Bros. & Co. Cotton and Corn Fertilizer	8.00	1.65	2.00
Scoco Ash Element	7.50	....	4.50
Special Top Dresser.....	....	8.22	3.00

*Southern Cotton Oil Co., Goldsboro, Fayetteville,
Rocky Mount and Wilson—*

Southern Cotton Oil Co.'s 16 Per Cent Acid Phosphate	16.00		
Southern Cotton Oil Co.'s 14 Per Cent Acid Phosphate	14.00	....	....
Best & Thompson's Special Cotton Grower....	9.00	2.27	2.00
Goldsboro Cotton Grower.....	9.00	2.27	2.00
Southern Cotton Oil Co.'s Special for Tobacco	8.00	3.71	7.00
Goldsboro Oil Mill Special Mixture.....	8.00	3.30	4.00
Fayetteville Oil Mill Special Mixture.....	8.00	3.30	4.00
Wilson Oil Mill Special Mixture.....	8.00	3.30	4.00
Southern Cotton Oil Co.'s Special Mixture....	8.00	3.30	4.00
Rocky Mount Oil Mill Special Mixture.....	8.00	3.30	4.00
Southern Cotton Oil Co.'s Melon Grower.....	8.00	2.47	10.00
Southern Cotton Oil Co.'s Special Cotton Grower	8.00	2.47	3.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Best & Thompson's High Grade.....	8.00	2.47	3.00
Goldsboro Oil Mill Special Cotton Grower...	8.00	2.47	3.00
Fayetteville Oil Mill Special Cotton Grower..	8.00	2.47	3.00
Wilson Oil Mill Special Cotton Grower.....	8.00	2.47	3.00
Rocky Mount Oil Mill Special Cotton Grower.	8.00	2.47	3.00
B. G. Thompson's Special Cotton and Tobacco Guano	8.00	2.47	3.00
Egerton's Old Reliable	8.00	2.47	3.00
Morning Glory	8.00	2.47	3.00
Goldsboro Oil Mill High Grade.....	8.00	2.47	3.00
Fayetteville Oil Mill High Grade.....	8.00	2.47	2.50
Wilson Oil Mill High Grade.....	8.00	2.27	2.50
The Southern Cotton Oil Co. High Grade....	8.00	2.27	2.50
Halifax Peanut Grower	8.00	1.65	5.00
Southern Cotton Oil Co.'s Peanut Grower....	8.00	1.65	4.00
Goldsboro Oil Mill Standard.....	8.00	1.65	2.00
Fayetteville Oil Mill Standard.....	8.00	1.65	2.00
Wilson Oil Mill Standard.....	8.00	1.65	2.00
Rocky Mount Oil Mill Standard.....	8.00	1.65	2.00
The Southern Cotton Oil Co. Standard.....	8.00	1.65	2.00
Southern Cotton Oil Co.'s Truck Grower....	6.00	4.12	7.00
Southern Special for Tobacco.....	6.00	2.90	6.00
Southern Cotton Oil Co. Top Dresser.....	4.00	8.25	4.00
Rocky Mount Top Dresser.....	....	7.43	4.00

Tidewater Guano Co., Norfolk, Va.—

Tidewater Raw Bone Meal Total	21.00	3.71	
Top Rail Acid Phosphate.....	16.00	....	....
Buster Brown Acid Phosphate.....	14.00	....	....
J. W. S. Acid Phosphate.....	13.00	....	....
Tidewater Special Bone and Potash.....	12.00	....	5.00
Tidewater Bone and Potash.....	10.00	....	5.00
Diana Brand Bone and Potash Compound....	10.00	....	4.00
Bully Boy Dissolved Bone and Potash.....	10.00	....	2.00
Diana Brand Soluble Guano.....	8.00	3.30	6.00
High Tide Soluble Guano.....	8.00	3.30	4.00
Sho Nuf Guano High Grade Complete Manure.	8.00	2.47	3.00
Hawk Eye Soluble Guano.....	8.00	2.07	2.00
Soil King Special Guano.....	8.00	1.85	4.00
Double Action Soluble Guano.....	8.00	1.65	2.00
"Good Money" Complete Guano.....	8.00	1.00	4.00
Tidewater 8 and 4 Bone and Potash.....	8.00	....	4.00
Tidewater Truck Guano	7.00	4.12	5.00
Tidewater 4-6-4 Guano	6.00	3.30	4.00
Nitrate of Soda .....	....	14.85	....
Blood .....	....	13.20	....
Muriate of Potash .....	....	....	50.00
Sulphate of Potash .....	....	....	48.00
Genuine German Kainit .....	....	....	12.00

Tuscarora Fertilizer Co., Atlanta, Ga., and Wilmington, N. C.—

Bone Meal Total	24.00	2.47	....
Raw Bone Meal Total	22.00	3.70	....
Acid Phosphate	17.00	....	....
Acid Phosphate	16.00	....	....
Acid Phosphate	14.00	....	....
Acid Phosphate	13.00	....	....

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Tuscarora Phosphate and Potash.....	12.00	....	6.00
Tuscarora Acid Phosphate	12.00	....	....
Tuscarora Fertilizer, No. 1044.....	10.00	3.30	4.00
Tuscarora Fertilizer, No. 1025.....	10.00	1.65	5.00
Tuscarora Fertilizer, No. 1022.....	10.00	1.65	2.00
Tuscarora Phosphate and Potash.....	10.00	....	6.00
Tuscarora Alkaline Bone	10.00	....	5.00
Tuscarora Acid Potash	10.00	....	4.00
Tuscarora Bone and Potash.....	10.00	....	2.00
Tuscarora Fertilizer, No. 9-2½-5.....	9.00	2.05	5.00
Tuscarora Chief	9.00	1.65	3.00
Fertilizer, No. 913	9.00	.82	3.00
Tuscarora Truckee	8.00	4.11	7.00
Fertilizer, No. 844	8.00	3.30	4.00
Fertilizer, No. 8310	8.00	2.47	10.00
Tuscarora, No. 836, for Tobacco.....	8.00	2.47	6.00
Special for Tobacco	8.00	2.47	5.00
Boon's Special	8.00	2.47	4.00
Tobacco Special	8.00	2.47	3.00
Cotton Special	8.00	2.47	3.00
Fertilizer, No. 833	8.00	2.47	3.00
Tuscarora Blood and Bone.....	8.00	2.47	3.00
Berry King	8.00	2.05	4.00
Tuscarora Tobacco Fertilizer	8.00	2.05	3.00
Tuscarora Champion	8.00	2.05	2.50
Tuscarora Champion Tobacco Grower.....	8.00	2.05	2.50
King Cotton	8.00	2.05	2.00
Tuscarora Fruit and Potato.....	8.00	1.65	10.00
Tuscarora Fertilizer, No. 825.....	8.00	1.65	5.00
Fertilizer, No. 824	8.00	1.65	4.00
Fertilizer, No. 823	8.00	1.65	3.00
Tuscarora Standard	8.00	1.65	2.00
Tuscarora Standard Tobacco Grower.....	8.00	1.65	2.00
Fertilizer, No. 815	8.00	.82	5.00
Fertilizer, No. 813	8.00	.82	3.00
Tuscarora Bone and Potash.....	8.00	....	5.00
Tuscarora Bone and Potash.....	8.00	....	4.00
Big Four (4) Fertilizer.....	7.00	1.65	4.00
Manure Substitute	6.00	3.30	4.00
Tuscarora Complete Top Dresser.....	4.00	6.18	2.50
Tankage	2.00	8.24	....
Nitrate of Soda .....	....	14.81	....
Dried Blood .....	....	13.16	....
Tuscarora Top Dresser .....	....	7.83	4.00
Tuscarora Chief Top Dresser.....	....	7.40	3.00
Muriate of Potash .....	....	....	50.00
Sulphate of Potash .....	....	....	50.00
Kainit .....	....	....	12.00

Tuscarora Fertilizer Co., Greensboro and Wilmington, N. C.—

Tuscarora Fertilizer Co. 933.....	9.00	2.47	3.00
Tuscarora Tobacco Fertilizer	9.00	2.47	3.00
Sulphate of Ammonia .....	....	20.00	....

Union Guano Co., Winston-Salem, N. C.—

Pure Raw Animal Bone Meal.....	20.60	3.71	....
Union Brand Ground Slag.....Total	17.00	....	....

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Union 16 Per Cent Acid Phosphate.....	16.00	....	....
Union High Grade Acid Phosphate.....	14.00	....	....
Dissolved Animal Bone Meal.....	13.00	2.06	....
Union Dissolved Bone	13.00	....	....
Union 12-6 Bone and Potash.....	12.00	....	6.00
Union 12-5 Bone and Potash.....	12.00	....	5.00
Union 12-4 Bone and Potash.....	12.00	....	4.00
Union 12-3 Bone and Potash.....	12.00	....	3.00
Union 12-2 Bone and Potash.....	12.00	....	2.00
Union 12 Per Cent Acid Phosphate.....	12.00	....	....
Liberty Bell Crop Grower.....	10.50	....	1.50
Union Prolific Cotton Compound.....	10.00	3.29	4.00
Union Special Formula for Cotton.....	10.00	2.47	3.00
Union Mule Brand Guano.....	10.00	1.65	2.00
Grain Chemicals	10.00	1.03	6.00
Union 10-6 Bone and Potash.....	10.00	....	6.00
Union 10-5 Bone and Potash.....	10.00	....	5.00
Union 10-4 Bone and Potash.....	10.00	....	4.00
Quakers Grain Mixture	10.00	....	4.00
Giant Phosphate and Potash.....	10.00	....	3.00
Finch & Harris's Special Bone and Potash Mixture	10.00	....	3.00
Union Bone and Potash.....	10.00	....	2.00
Union Renown Guano	9.00	2.47	3.00
Union Perfect Cotton Grower.....	9.00	2.26	2.00
Union Complete Cotton Mixture.....	9.00	1.65	3.00
Farmers' Blood and Bone Guano.....	9.00	1.65	3.00
Dixie Cotton Grower	9.00	1.65	2.00
Q. and Q. (Quality and Quantity) Guano....	9.00	1.65	1.00
B. S. Ammoniated Guano.....	9.00	.82	3.00
Union Guano for Cotton and Tobacco.....	8.00	3.29	6.00
Union Premium Guano	8.00	3.29	4.00
Union Homestead Guano	8.00	2.47	3.00
Victoria High Grade Tobacco Fertilizer.....	8.00	2.47	3.00
Union Water Fowl Guano.....	8.00	2.06	3.00
Union Standard Tobacco Grower.....	8.00	2.06	2.00
Union Potato Mixture	8.00	1.65	10.00
Old Honesty Guano	8.00	1.65	2.00
Fish Brand Ammoniated Guano for Tobacco..	8.00	1.65	2.00
Old Honesty Tobacco Guano.....	8.00	1.65	2.00
Fish Brand Ammoniated Guano.....	8.00	1.65	2.00
Union Superlative Guano	8.00	.82	4.00
Sunrise Ammoniated Guano	8.00	.82	3.00
Union 8-5 Bone and Potash.....	8.00	....	5.00
Union Wheat Mixture	8.00	....	4.00
Union Vegetable Compound	7.00	4.12	8.00
Union Truck Guano	7.00	3.29	5.00
Complete Mixture for Top Dressing.....	4.00	6.18	4.00
Special 10 Per Cent Top Dresser.....	2.00	8.24	2.50
Nitrate of Soda .....	....	14.82	....
Union Top Dresser .....	....	7.42	3.00
Muriate of Potash .....	....	....	48.00
Sulphate of Potash .....	....	....	48.00
Genuine German Kainit .....	....	....	12.00

United States Fertilizer Co., Baltimore, Md.—

Raw Bone Meal	Total	22.50	3.69	....
Farm Bell Acid Phosphate.....		16.00	....	....

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Farm Bell Acid Phosphate.....	14.00	....	....
Farm Bell Phospho. Potassa.....	12.00	....	5.00
Farm Bell Potash and Acid.....	10.00	....	6.00
Farm Bell 10-5 Mixture.....	10.00	....	5.00
Farm Bell Special Mixture.....	10.00	....	4.00
Farm Bell Alkaline Mixture.....	10.00	....	2.00
Farm Bell Big Yield.....	9.00	2.47	4.00
Farm Bell Buckeye Guano.....	9.00	.82	2.00
Farm Bell Blood, Bone and Potash.....	8.00	4.11	7.00
Farm Bell Excelsior Guano.....	8.00	3.28	7.00
Farm Bell Majestic Guano.....	8.00	3.28	4.00
Farm Bell Tobacco Fertilizer.....	8.00	2.47	4.00
Farm Bell Cotton Special.....	8.00	2.47	3.00
Farm Bell Tobacco Special.....	8.00	2.47	3.00
Farm Bell Tomato Special.....	8.00	2.06	3.00
Farm Bell Crop Grower.....	8.00	2.06	3.00
Farm Bell Fruit and Potato.....	8.00	1.65	10.00
Farm Bell Animal Ammoniated.....	8.00	1.65	5.00
Farm Bell Standard Guano.....	8.00	1.65	2.00
Farm Bell Wheat, Oat, Corn Special.....	8.00	.82	6.00
Farm Bell Pennant Winner.....	8.00	.82	4.00
Farm Bell Phosphate and Potash.....	8.00	....	5.00
Farm Bell Wheat and Grass Grower.....	8.00	....	4.00
Farm Bell Truckers' Ideal.....	7.00	4.11	8.00
Farm Bell Potato and Tobacco Guano.....	7.00	2.47	10.00
Farm Bell Klimax Kom pound	7.00	.82	4.00
Farm Bell 7 Per Cent Trucker.....	6.00	5.75	5.00
Farm Bell Truckers' Favorite.....	6.00	3.28	8.00
Farm Bell Top Dresser.....	4.00	6.56	2.00
Sulphate of Ammonia .....	....	20.50	....
Nitrate of Soda .....	....	15.50	....
Sulphate of Potash .....	....	....	50.00
Muriate of Potash .....	....	....	48.00
Kainit .....	....	....	12.00

Union Abattoir Co., Norfolk, Va.—

Red Star Acid Phosphate.....	16.00	....	....
Red Star Acid Phosphate.....	14.00	....	....
Red Star Potash and Soluble Bone.....	10.00	....	4.00
Red Star H. G. Guano.....	8.75	2.00	2.00
Red Star Brand Cotton Guano.....	8.00	3.28	4.00
Red Star Cotton Guano.....	8.00	2.50	1.00
Red Star Cotton and Tobacco Guano.....	8.00	2.46	3.00
Red Star Standard	8.00	2.00	2.00
Red Star 7 Per Cent Guano.....	6.00	5.74	5.00
Nitrate of Soda .....	....	15.23	....
Muriate of Potash .....	....	....	50.00

R. L. Upshur Guano Co., Norfolk, Va.—

Upshur's 16 Per Cent Acid Phosphate.....	16.00	....	....
Upshur's 14 Per Cent Acid Phosphate.....	14.00	....	....
Upshur's 10-4 Bone and Potash.....	10.00	....	4.00
Upshur's 10-2 Bone and Potash.....	10.00	....	2.00
Upshur's Cotton-seed Meal Mixture.....	9.00	2.26	2.00
Upshur's Special 8-4-4	8.00	3.29	4.00
Upshur's 8-3-3 Cotton Guano.....	8.00	2.47	3.00
Upshur's High Grade Tobacco Guano.....	8.00	2.47	3.00
Upshur's O. P. (Old Plantation).....	8.00	2.06	3.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Upshur's Fish, Bone and Potash.....	8.00	1.65	4.00
Upshur's Peanut Guano	8.00	1.65	2.00
Upshur's G., G. and C. (Grain, Grass and Cotton)	8.00	1.65	2.00
Upshur's Premo Cotton Guano.....	8.00	1.65	2.00
Upshur's Special Truck Guano.....	7.00	4.11	8.00
Upshur's F. F. (Farmer's Favorite).....	7.00	4.11	6.00
Upshur's 5 Per Cent Guano.....	7.00	4.11	5.00
Upshur's 6-4-4 Guano	6.00	3.29	4.00
Upshur's Norfolk Special 10 Per Cent.....	5.00	8.23	2.00
Upshur's 7 Per Cent Special Potato Guano...	5.00	5.76	5.00
Upshur's Top Dresser	3.00	8.23	4.00
Nitrate of Soda .....	....	15.65	....
Muriate of Potash .....	....	....	50.00
Sulphate of Potash .....	....	....	50.00
Genuine German Kainit .....	....	....	12.00

Van Iderstine Co., New York and Wilmington, N. C.—

Van Iderstine Pure Ground Bone.....	27.00	2.00	
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Venable Fertilizer Co., Richmond, Va.—

Pure Animal Bone	Total	25.00	2.47	
Pure Raw Bone	Total	22.50	3.70	
Venable Best Acid Phosphate.....		16.00	....	....
H. G. Acid Phosphate.....		14.00	....	....
Venable's Dissolved Bone		13.00	....	....
Venable's Majestic Bone and Potash Mixture.		12.00	....	5.00
Venable's Standard Acid Phosphate.....		12.00	....	....
Venable's Corn, Wheat and Grass Fertilizer..		10.00	.82	1.00
High Grade Bone and Potash Mixture.....		10.00	....	4.00
Bone and Potash Mixture.....		10.00	....	2.00
Venable Carolina Favorite		9.00	2.47	6.00
Venable's 3-9-3 Tobacco Fertilizer.....		9.00	2.47	3.00
Roanoke Mixture		9.00	2.26	2.00
Roanoke Meal Mixture		9.00	2.26	2.00
Venable's Majestic Guano		9.00	1.65	3.00
Venable's B. B. P. Manure.....		9.00	1.65	1.00
Venable's 5 Per Cent Trucker.....		8.00	4.11	5.00
Venable's Sovereign Guano		8.00	3.29	4.00
Venable's 4 Per Cent Trucker.....		8.00	3.29	4.00
Venable's H. G. Tobacco Fertilizer.....		8.00	2.47	3.00
Farmers' Union H. G. Tobacco Guano.....		8.00	2.47	3.00
Ballard's Choice Fertilizer		8.00	2.47	3.00
Venable's H. G. Cotton Guano.....		8.00	2.47	3.00
Venable's Alliance Tobacco Manure, No. 1...		8.00	2.06	3.00
Venable's Cotton Grower		8.00	2.06	3.00
Venable's Roanoke Special		8.00	2.06	3.00
Venable's Ideal Manure		8.00	1.65	5.00
Our Union Tobacco Fertilizer.....		8.00	1.65	4.00
Farmers' Union Special Tobacco Fertilizer...		8.00	1.65	2.00
Venable's Meal Mixture		8.00	1.65	2.00
Venable's Alliance Tobacco Manure, No. 2....		8.00	1.65	2.00
Our Union Special Fertilizer.....		8.00	1.65	2.00
Planter's Bone Fertilizer		8.00	1.65	2.00
Venable's Peanut Special		8.00	.82	4.00
Venable's Alliance Bone and Potash Mixture.		8.00	....	4.00
Venable's Peanut Grower		8.00	....	4.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Venable's 10 Per Cent Trucker.....	6.00	8.23	2.00
Venable's 6-6-6 Manure	6.00	4.94	6.00
Ideal Top Dresser	4.00	8.23	4.00
Majestic Top Dresser	4.00	6.17	2.50
Sulphate of Ammonia .....	....	19.75	....
Nitrate of Soda .....	....	15.63	....
Special Top Dresser .....	....	7.40	3.00
Muriate of Potash .....	....	....	50.00
Sulphate of Potash .....	....	....	48.00
High Grade German Potash.....	....	....	16.00
Pure German Kainit .....	....	....	12.00

Vance Guano Co., Henderson, N. C.—

Best Grade Acid Phosphate.....	16.00	....	....
Vance High Grade Acid Phosphate.....	14.00	....	....
Vance Corn and Grain Grower.....	10.00	.82	3.50
Bone and Potash Compound.....	10.00	....	2.00
Farmers' Union High Grade.....	9.00	2.47	3.00
Brodie's Best B. B.....	8.00	3.29	4.00
Vance Special Tobacco Manure.....	8.00	2.47	8.00
Fish Brand Tobacco Manure.....	8.00	2.47	3.00
Sterling Cotton Grower	8.00	1.65	2.00
Hot Stuff	8.00	1.65	2.00

Virginia-Carolina Chemical Co., Richmond, Va.—

V.-C. C. Co.'s Floats	Total	27.00	....	....
V.-C. C. Co.'s Concentrated Acid Phosphate.....		24.00	....	....
V.-C. C. Co.'s Pure Raw Bone	Total	20.60	3.71	....
V.-C. C. Co.'s Johnson's Best		20.00	4.94	6.00
V.-C. C. Co.'s Concentrated Bone and Potash.....		20.00	....	4.00
V.-C. C. Co.'s 17 Per Cent Acid Phosphate.....		17.00	....	....
V.-C. C. Co.'s Concentrated Ammoniated		16.00	3.29	4.00
V.-C. C. Co.'s Climax Potash Mixture.....		16.00	....	2.00
V.-C. C. Co.'s Alliance Acid Phosphate.....		16.00	....	....
V.-C. C. Co.'s 16 Per Cent Acid Phosphate...		16.00	....	....
V.-C. C. Co.'s Sludge Acid Phosphate		14.00	....	....
V.-C. C. Co.'s 14 Per Cent Acid Phosphate...		14.00	....	....
V.-C. C. Co.'s Dissolved Animal Bone		13.00	2.06	....
V.-C. C. Co.'s 13 Per Cent Acid Phosphate...		13.00	....	....
V.-C. C. Co.'s Special High Grade Potash Mix- ture		12.00	....	6.00
V.-C. C. Co.'s H. G. Potash Mixture.....		12.00	....	5.00
V.-C. C. Co.'s Goodman's Special Potash Mix- ture		12.00	....	5.00
V.-C. C. Co.'s 12-4 Grain Grower		12.00	....	4.00
V.-C. C. Co.'s Wythe County Potash Mixture.....		12.00	....	3.00
V.-C. C. Co.'s Special Crop Grower		12.00	....	3.00
V.-C. C. Co.'s Battle's Crop Grower		12.00	....	3.00
V.-C. C. Co.'s 12 Per Cent Acid Phosphate...		12.00	....	....
V.-C. C. Co.'s Home Comfort Acid Phosphate.....		12.00	....	....
V.-C. C. Co.'s Virginia 11-5 Bone and Potash.....		11.00	....	5.00
V.-C. C. Co.'s Electric H. G. Special.....		10.00	3.29	4.00
V.-C. C. Co.'s Ideal Crop Grower		10.00	2.47	3.00
V.-C. C. Co.'s Special Grain Mixture		10.00	1.65	5.00
V.-C. C. Co.'s Sovereign Crop Producer		10.00	1.65	2.00
V.-C. C. Co.'s Ford's Wheat and Corn Guano.....		10.00	.82	2.50
V.-C. C. Co.'s Grain Special		10.00	....	6.00
V.-C. C. Co.'s Standard Bone and Potash....		10.00	....	5.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
V.-C. C. Co.'s Crescent Potash Mixture	10.00	....	5.00
V.-C. C. Co.'s Special Potash Mixture	10.00	....	4.00
V.-C. C. Co.'s Dissolved Bone and Potash....	10.00	....	2.00
V.-C. C. Co.'s Best's H. G. Tobacco Fertilizer.	9.00	2.47	7.00
V.-C. C. Co.'s Great Texas Cotton Grower Sol- uble Guano	9.00	2.47	4.00
V.-C. C. Co.'s 3-9-3 Tobacco Fertilizer	9.00	2.47	3.00
V.-C. C. Co.'s Jeffrey's High Grade Guano...	9.00	2.47	3.00
V.-C. C. Co.'s N. and R.'s Best.....	9.00	2.47	3.00
V.-C. C. Co.'s Westfield Special H. G. Tobacco Grower	9.00	2.47	3.00
V.-C. C. Co.'s Grey Soil Special H. G. Tobacco Grower	9.00	2.47	3.00
V.-C. C. Co.'s Powell's Special H. G. C. S. M.	9.00	2.26	3.00
V.-C. C. Co.'s Southern Cotton Grower C. S. M.	9.00	2.26	2.00
V.-C. C. Co.'s Vecoco Cotton Grower C. S. M.	9.00	2.26	2.00
V.-C. C. Co.'s Cotton Grower	9.00	2.26	2.00
V.-C. C. Co.'s Best's Special Cotton Grower..	9.00	2.26	2.00
V.-C. C. Co.'s Prolific Cotton Grower C. S. M.	9.00	2.26	2.00
V.-C. C. Co.'s White Stem C. S. M.	9.00	2.26	2.00
V.-C. C. Co.'s Standard Cotton Grower C. S. M.	9.00	2.26	2.00
V.-C. C. Co.'s Bumper Crop Grower	9.00	2.06	5.00
V.-C. C. Co.'s Cuban Special Mixture	9.00	1.85	4.00
V.-C. C. Co.'s Cock's Soluble Guano H. G. Ani- mal Bone	9.00	1.85	3.00
V.-C. C. Co.'s No. 923 Guano.....	9.00	1.65	3.00
V.-C. C. Co.'s Reliable Cotton Brand Fertilizer	9.00	1.65	3.00
V.-C. C. Co.'s North State Guano C. S. M..	9.00	1.65	1.00
V.-C. C. Co.'s Grain Mixture.....	9.00	1.03	2.00
V.-C. C. Co.'s Tiger Brand	9.00	1.00	3.00
V.-C. C. Co.'s Bigelow's Crop Guano	9.00	.82	3.00
V.-C. C. Co.'s Burnhardt's Grain and Crop Guano	9.00	.82	3.00
V.-C. C. Co.'s McCormick's Wheat and Grain Guano	9.00	.82	3.00
V.-C. C. Co.'s Baltimore Special Mixture....	9.00	.82	2.00
V.-C. C. Co.'s Farmer's Friend Favorite Fer- tilizer Special	8.50	1.65	2.00
V.-C. C. Co.'s Powhatan Crop Mixture.....	8.50	1.65	1.50
V.-C. C. Co.'s Pelican Peruvian Guano (Peli- can Truck Grower and Top Dresser).....	8.00	4.12	5.00
V.-C. C. Co.'s Muse's Special	8.00	3.70	7.00
V.-C. C. Co.'s Enterprise High Grade	8.00	3.29	11.00
V.-C. C. Co.'s Long Leaf Tobacco Grower....	8.00	3.29	5.00
V.-C. C. Co.'s Old Dominion Special Mixture for Tobacco	8.00	3.29	4.00
V.-C. C. Co.'s Alliance H. G. Manure.....	8.00	3.29	4.00
V.-C. C. Co.'s Fish and Meal Mixture.....	8.00	3.29	4.00
V.-C. C. Co.'s Carr's Crop Grower.....	8.00	3.29	4.00
V.-C. C. Co.'s Farmers' Choice	8.00	3.29	4.00
V.-C. C. Co.'s John F. Croom & Bro. Fish and Meal Mixture	8.00	3.29	4.00
V.-C. C. Co.'s Special	8.00	3.29	4.00
V.-C. C. Co.'s Nowell & Richardson's Special.	8.00	3.29	4.00
V.-C. C. Co.'s Croom's Crop Grower, Best for All Crops	8.00	3.29	4.00
V.-C. C. Co.'s Formula 161 for Tobacco.....	8.00	3.29	4.00
V.-C. C. Co.'s High Grade Tobacco Fertilizer.	8.00	2.47	10.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
V.-C. C. Co.'s Valentine Special	8.00	2.47	7.00
V.-C. C. Co.'s Special Mixture	8.00	2.47	6.00
V.-C. C. Co.'s Excelsior H. G. Special.....	8.00	2.47	5.00
V.-C. C. Co.'s Lion's High Grade Tobacco Fer- tilizer	8.00	2.47	4.00
V.-C. C. Co.'s Farmers' Success	8.00	2.47	4.00
V.-C. C. Co.'s Myatt's Special H. G. Fertilizer	8.00	2.47	3.00
V.-C. C. Co.'s Alliance Special Fertilizer	8.00	2.47	3.00
V.-C. C. Co.'s Croom's Special Cotton Ferti- lizer, Fish and Meal Mixture.....	8.00	2.47	3.00
V.-C. C. Co.'s Menhaden Fish and Meal Mix- ture	8.00	2.47	3.00
V.-C. C. Co.'s Best's H. G. Cotton and Tobacco Guano	8.00	2.47	3.00
V.-C. Co.'s Diamond C. S. M.	8.00	2.47	3.00
V.-C. C. Co.'s Jumbo Peruvian Guano, Jumbo Crop Grower	8.00	2.47	3.00
V.-C. C. Co.'s Oldman's Special Compound for Tobacco, High Grade	8.00	2.47	3.00
V.-C. C. Co.'s Blake's Best	8.00	2.47	3.00
V.-C. C. Co.'s Royal High Grade Fertilizer...	8.00	2.47	3.00
V.-C. C. Co.'s Special High Grade Tobacco Fertilizer	8.00	2.47	3.00
V.-C. C. Co.'s Adams' Special.....	8.00	2.47	3.00
V.-C. C. Co.'s Peruvian H. G. Tobacco Guano	8.00	2.47	3.00
V.-C. C. Co.'s Red Cliff H. G. Cotton Grower	8.00	2.47	3.00
V.-C. C. Co.'s Zeno Special Compound for To- bacco H. G.	8.00	2.47	3.00
V.-C. C. Co.'s Gold Medal H. G. Tobacco Guano	8.00	2.47	3.00
V.-C. C. Co.'s 3-S-3 Tobacco Fertilizer	8.00	2.47	3.00
V.-C. C. Co.'s Atlas Guano C. S. M.	8.00	2.47	2.50
V.-C. C. Co.'s Admiral C. S. M.	8.00	2.47	2.50
V.-C. C. Co.'s Good Luck C. S. M.	8.00	2.47	2.50
V.-C. C. Co.'s Split Silk C. S. M.	8.00	2.47	2.50
V.-C. C. Co.'s 3 Per Cent Special C. S. M. Guano, No. 3	8.00	2.47	2.00
V.-C. C. Co.'s Orange Grove Guano.....	8.00	2.26	2.50
V.-C. C. Co.'s Delta C. S. M. Guano.....	8.00	2.26	2.50
V.-C. C. Co.'s Royal Crown	8.00	2.26	2.00
V.-C. C. Co.'s Superlative C. S. M. Guano....	8.00	2.06	3.00
V.-C. C. Co.'s Blue Star C. S. M.....	8.00	2.06	3.00
V.-C. C. Co.'s Potato and Cabbage Special....	8.00	1.65	10.00
V.-C. C. Co.'s Smith's Irish Potato Guano....	8.00	1.65	10.00
V.-C. C. Co.'s Pace's 5 Per Cent Special Po- tato Guano	8.00	1.65	5.00
V.-C. C. Co.'s Boon's Favorite	8.00	1.65	5.00
V.-C. C. Co.'s Monarch Brand	8.00	1.65	5.00
V.-C. C. Co.'s Virginia Bone Special	8.00	1.65	5.00
V.-C. C. Co.'s Valley Pride	8.00	1.65	4.00
V.-C. C. Co.'s Corn and Peanut Special.....	8.00	1.65	4.00
V.-C. C. Co.'s Maultsby's Fish Guano.....	8.00	1.65	3.00
V.-C. C. Co.'s Alliance Grain Fertilizer	8.00	1.65	2.00
V.-C. C. Co.'s Winston Special for Cotton....	8.00	1.65	2.00
V.-C. C. Co.'s Diamond Dust C. S. M.....	8.00	1.65	2.00
V.-C. C. Co.'s Plant Food C. S. M.....	8.00	1.65	2.00
V.-C. C. Co.'s Wilson's Standard C. S. M....	8.00	1.65	2.00
V.-C. C. Co.'s Ajax C. S. M. Guano.....	8.00	1.65	2.00
V.-C. C. Co.'s Farmers' Favorite Fertilizer C. S. M.....	8.00	1.65	2.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
V.-C. C. Co.'s Monarch Wheat and Grass Grower	8.00	1.00	7.00
V.-C. C. Co.'s Special Peanut Grower.....	8.00	1.00	4.00
V.-C. C. Co.'s Electric Grain and Grass Grower	8.00	1.00	4.00
V.-C. C. Co.'s Peerless Corn, Wheat and Grass Grower	8.00	1.00	4.00
V.-C. C. Co.'s Peanut Grower	8.00	.82	4.00
V.-C. C. Co.'s The Harvester.....	8.00	.82	3.00
V.-C. C. Co.'s Pinnacle Grain Grower.....	8.00	.82	3.00
V.-C. C. Co.'s S-5 Potash Mixture.....	8.00	....	5.00
V.-C. C. Co.'s Potash Mixture for Peanuts....	8.00	....	4.00
V.-C. C. Co.'s Jones' Grain Special.....	8.00	....	4.00
V.-C. C. Co.'s Special Wheat Compound.....	8.00	....	4.00
V.-C. C. Co.'s Truck Crop Fertilizer.....	7.00	4.12	7.00
V.-C. C. Co.'s Konqueror H. G. Truck Fertil- izer	7.00	4.12	5.00
V.-C. C. Co.'s Pasquotank Trucker.....	7.00	3.29	8.00
V.-C. C. Co.'s Potash Potato Producer.....	7.00	3.29	8.00
V.-C. C. Co.'s Formula 44 for Bright Wrap- pers and Smokers	7.00	2.55	3.20
V.-C. C. Co.'s Plant Bed and High Grade....	7.00	2.26	6.00
V.-C. C. Co.'s Invincible High Grade Fertilizer	6.00	4.12	7.00
V.-C. C. Co.'s Kitty Hawk Truck Fertilizer..	6.00	4.12	7.00
V.-C. C. Co.'s Special Truck Guano.....	6.00	4.12	7.00
V.-C. C. Co.'s Money Maker for Cabbage and Potatoes	6.00	1.65	10.00
V.-C. C. Co.'s Cotton Grower	5.00	2.88	3.50
V.-C. C. Co.'s Clinton Special H. G.	5.00	2.47	5.00
V.-C. C. Co.'s 10 Per Cent Top Dresser Extra H. G.	4.00	8.24	4.00
V.-C. C. Co.'s Fish Scrap.....	4.00	8.24	....
V.-C. C. Co.'s Dewberry Special.....	4.00	6.59	....
V.-C. C. Co.'s Dewberry Special Extra H. G.	4.00	6.56	4.00
V.-C. C. Co.'s High Grade Top Dresser.....	4.00	6.17	2.50
V.-C. C. Co.'s Sulphate of Ammonia.....	....	20.59	....
V.-C. C. Co.'s Nitrate of Soda.....	....	14.82	....
V.-C. C. Co.'s Blood.....	....	13.18	....
V.-C. C. Co.'s Special Top Dresser.....	....	7.41	3.00
V.-C. C. Co.'s Muriate of Potash.....	....	....	48.00
V.-C. C. Co.'s Sulphate of Potash.....	....	....	48.00
V.-C. C. Co.'s Manure Salts.....	....	....	20.00
V.-C. C. Co.'s Kainit .....	....	....	12.00
Allison & Addison's Fulton Acid Phosphate..	14.00	....	....
Allison & Addison's I. X. L. Acid Phosphate	13.00	....	....
Allison & Addison's Standard Acid Phosphate	12.00	....	....
Allison & Addison's Rockets Acid Phosphate	12.00	....	....
Allison & Addison's McGavock's Special Pot- ash Mixture	10.00	....	2.00
Allison & Addison's B. P. Potash Mixture....	10.00	....	2.00
Allison & Addison's Star Special Tobacco Ma- nure	9.00	2.26	2.00
Allison & Addison's Star Brand Special H. G.	9.00	2.06	5.00
Allison & Addison's Star Brand Guano.....	9.00	1.65	1.00
Allison & Addison's Little Giant Grain and Grass Grower	9.00	1.00	2.00
Allison & Addison's Anchor Brand Tobacco Fertilizer	8.50	2.26	2.00
Allison & Addison's Star Brand Vegetable Guano	8.00	4.50	4.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Allison & Addison's A. A. Guano	8.00	2.47	3.00
Allison & Addison's Anchor Brand Fertilizer	8.00	1.65	2.00
Allison & Addison's Old Hickory Guano	8.00	1.65	2.00
Allison & Addison's Peanut Grower	8.00	1.00	4.00
Atlantic and Virginia Fertilizer Co.'s Eureka Acid Phosphate	16.00	....	....
Atlantic and Virginia Fertilizer Co.'s Valley of Virginia Phosphate	14.00	....	....
Atlantic and Virginia Fertilizer Co.'s Cren- shaw Acid Phosphate	13.00	....	....
Atlantic and Virginia Fertilizer Co.'s Our Acid Phosphate	12.00	....	....
Atlantic and Virginia Fertilizer Co.'s Eureka Bone and Potash Compound.....	10.00	....	2.00
Atlantic and Virginia Fertilizer Co.'s Eureka Ammoniated Bone Special for Tobacco....	9.90	2.06	2.00
Atlantic and Virginia Fertilizer Co.'s Orient Complete Manure	9.00	1.65	2.00
Atlantic and Virginia Fertilizer Co.'s Virginia Truckers	8.00	4.12	5.00
Atlantic and Virginia Fertilizer Co.'s Eureka Ammoniated Bone	8.00	1.65	2.00
Atlantic and Virginia Fertilizer Co.'s Orient Special for Tobacco	8.00	1.65	2.00
Atlantic and Virginia Fertilizer Co.'s Peanut Grower	8.00	1.00	4.00
Atlantic and Virginia Fertilizer Co.'s Carolina Trucker	7.00	5.76	7.00
Charlotte Oil and Fertilizer Co.'s 15 Per Cent Acid Phosphate	15.00	....	....
Charlotte Oil and Fertilizer Co.'s Catawba Acid Phosphate	14.00	....	....
Charlotte Oil and Fertilizer Co.'s Acid Phos- phate	13.00	....	....
Charlotte Oil and Fertilizer Co.'s Dayvault's Special	12.00	....	....
Charlotte Oil and Fertilizer Co.'s Dissolved Bone	12.00	....	....
Charlotte Oil and Fertilizer Co.'s Oliver's Per- fect Wheat Grower	11.00	2.47	4.00
Charlotte Oil and Fertilizer Co.'s 10-2 Bone and Potash	10.00	....	2.00
Charlotte Oil and Fertilizer Co.'s High Grade Special Tobacco Fertilizer	9.00	2.06	2.00
Charlotte Oil and Fertilizer Co.'s Queen of the Harvest C. S. M.	9.00	1.65	2.00
Charlotte Oil and Fertilizer Co.'s McCrary's Diamond Bone and Potash.....	9.00	....	3.00
Charlotte Oil and Fertilizer Co.'s Groom's Special Tobacco Fertilizer	8.00	2.47	4.00
Charlotte Oil and Fertilizer Co.'s Catawba Guano B. G.	8.00	2.47	3.00
Charlotte Oil and Fertilizer Co.'s Special 3 Per Cent Guano C. S. M.	8.00	2.47	2.00
Charlotte Oil and Fertilizer Co.'s Ammoniated Guano B. G.	8.00	2.06	1.50
Charlotte Oil and Fertilizer Co.'s Ammoniated Guano C. S. M.	8.00	2.06	1.50

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Charlotte Oil and Fertilizer Co.'s The Leader B. G.	8.00	1.65	2.00
Charlotte Oil and Fertilizer Co.'s King Cotton Grower	8.00	1.65	2.00
Davie & Whittle's Owl Brand High Grade Acid Phosphate	16.00	....	....
Davie & Whittle's Owl Brand High Grade Dissolved Bone	14.00	....	....
Davie & Whittle's Owl Brand Acid Phosphate.	13.00	....	....
Davie & Whittle's Owl Brand Dissolved Bone.	12.00	....	....
Davie & Whittle's Owl Brand Acid Phosphate with Potash	10.00	....	2.00
Davie & Whittle's Owl Brand Truck Guano..	9.00	2.26	2.00
Davie & Whittle's Owl Brand High Grade 3 Per Cent Soluble Guano.....	9.00	2.06	3.00
Davie & Whittle's Owl Brand Special Tobacco Guano	9.00	2.06	2.00
Davie & Whittle's Owl Brand Truck Guano..	8.00	4.94	5.00
Davie & Whittle's Owl Brand Guano for To- bacco	8.00	2.47	3.00
Davie & Whittle's Vinco Guano.....	8.00	1.65	3.00
Davie Whittle's Owl Brand Guano.....	8.00	1.65	2.00
Davie & Whittle's Peanut Grower.....	8.00	1.00	4.00
Durham Fertilizer Co.'s Best Acid Phosphate.	16.00	....	....
Durham Fertilizer Co.'s Standard High Grade Acid Phosphate	14.00	....	....
Durham Fertilizer Co.'s Excelsior Dissolved Bone Phosphate	14.00	....	....
Durham Fertilizer Co.'s Blacksburg Dissolved Bone	13.00	....	....
Durham Fertilizer Co.'s N. C. Farmers' Alli- ance Official Acid Phosphate.....	13.00	....	....
Durham Fertilizer Co.'s Double Bone Phos- phate	13.00	....	....
Durham Fertilizer Co.'s Acid Phosphate....	12.00	....	....
Durham Fertilizer Co.'s Great Wheat and Corn Grower	10.50	....	1.50
Durham Fertilizer Co.'s Diamond Wheat Mix- ture	10.00	....	3.00
Durham Fertilizer Co.'s Standard Wheat and Corn Grower	10.00	....	2.00
Durham Fertilizer Co.'s Blue Ridge Wheat Grower	10.00	....	2.00
Durham Fertilizer Co.'s Standard Wheat Grower	10.00	....	2.00
Durham Fertilizer Co.'s Bone and Potash Mix- ture	10.00	....	2.00
Durham Fertilizer Co.'s L. & M. Special....	9.00	2.47	2.00
Durham Fertilizer Co.'s Standard Guano....	9.00	1.65	2.00
Durham Fertilizer Co.'s Ammoniated Fertil- izer	9.00	1.65	1.00
Durham Fertilizer Co.'s Special Plant and Truck Fertilizer	8.00	4.12	3.00
Durham Fertilizer Co.'s Durham High Grade.	8.00	3.29	4.00
Durham Fertilizer Co.'s Gold Medal Brand Guano	8.00	2.47	3.00
Durham Fertilizer Co.'s Yellow Leaf Tobacco Guano	8.00	2.47	3.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Durham Fertilizer Co.'s N. C. Farmers' Alliance Official Guano	8.00	2.06	3.00
Durham Fertilizer Co.'s Pride of Durham Tobacco Grower	8.00	2.06	3.00
Durham Fertilizer Co.'s Raw Bone Superphosphate for Tobacco	8.00	2.06	2.00
Durham Fertilizer Co.'s Raw Bone Superphosphate	8.00	2.06	1.50
Durham Fertilizer Co.'s Genuine Bone and Peruvian Guano	8.00	1.65	2.00
Durham Fertilizer Co.'s Genuine Bone and Peruvian Guano for Tobacco.....	8.00	1.65	2.00
Durham Fertilizer Co.'s Blacksburg Soluble Guano	8.00	1.65	2.00
Durham Fertilizer Co.'s Progressive Farmer Guano	8.00	1.65	2.00
Durham Fertilizer Co.'s Peanut Grower.....	8.00	1.00	4.00
Durham Fertilizer Co.'s Carr's Special Wheat Grower	8.00	....	4.00
Durham Fertilizer Co.'s Best Potato Manure.	7.00	5.76	7.00
Lynchburg Guano Co.'s Ironside Acid Phosphate	16.00	....	....
Lynchburg Guano Co.'s Lynchburg High Grade Acid Phosphate	14.00	....	....
Lynchburg Guano Co.'s Arvonja Acid Phosphate	13.00	....	....
Lynchburg Guano Co.'s Spartan Acid Phosphate	12.00	....	....
Lynchburg Guano Co.'s Alpine Mixture.....	10.00	....	5.00
Lynchburg Guano Co.'s S. W. Special Bone and Potash Mixture	10.00	....	4.00
Lynchburg Guano Co.'s Dissolved Bone and Potash	10.00	....	2.00
Lynchburg Guano Co.'s Independent Standard.	8.50	1.65	2.00
Lynchburg Guano Co.'s Bright Belt Guano...	8.00	2.47	3.00
Lynchburg Guano Co.'s Solid Gold Tobacco Guano	8.00	2.26	4.00
Lynchburg Guano Co.'s New Era.....	8.00	1.65	3.00
Lynchburg Guano Co.'s Lynchburg Soluble...	8.00	1.65	2.00
Lynchburg Guano Co.'s Lynchburg Soluble for Tobacco	8.00	1.65	2.00
Norfolk and Carolina Chemical Co.'s Norfolk Reliable Acid Phosphate	14.00	....	....
Norfolk and Carolina Chemical Co.'s Norfolk Best Acid Phosphate	13.00	....	....
Norfolk and Carolina Chemical Co.'s Norfolk Soluble Bone	12.00	....	....
Norfolk and Carolina Chemical Co.'s Norfolk Bone and Potash	10.00	....	2.00
Norfolk and Carolina Chemical Co.'s Norfolk Truck and Tomato Grower.....	8.00	4.12	5.00
Norfolk and Carolina Chemical Co.'s Amazon High Grade Manure	8.00	2.47	3.00
Norfolk and Carolina Chemical Co.'s Bright Leaf Tobacco Grower	8.00	2.47	3.00
Norfolk and Carolina Chemical Co.'s Amazon H. G. Special Tobacco Guano.....	8.00	2.47	3.00
Norfolk and Carolina Chemical Co.'s Cooper's Bright Tobacco Fertilizer	8.00	2.06	3.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Norfolk and Carolina Chemical Co.'s Genuine Slaughter House Bone Made Expressly for Tobacco	8.00	2.06	2.00
Norfolk and Carolina Chemical Co.'s Crescent Brand Ammoniated Fertilizer	8.00	1.65	2.00
Norfolk and Carolina Chemical Co.'s Genuine Slaughter House Bone Guano.....	8.00	1.65	2.00
Norfolk and Carolina Chemical Co.'s Peanut Grower	8.00	1.00	4.00
Old Dominion Guano Co.'s High Grade Acid Phosphate	14.00	....	....
Old Dominion Guano Co.'s Bone Phosphate...	13.00	....	....
Old Dominion Guano Co.'s Royster's Acid Phosphate	12.00	....	....
Old Dominion Guano Co.'s Obelisk Brand Bone and Potash	10.00	....	4.00
Old Dominion Guano Co.'s Planter's Bone and Potash Mixture	10.00	....	3.00
Old Dominion Guano Co.'s Alkaline Bone and Potash	10.00	....	2.00
Old Dominion Guano Co.'s Horne's Cotton Fertilizer	9.00	2.06	3.00
Old Dominion Guano Co.'s Standard Raw Bone Soluble Guano	9.00	1.65	1.00
Old Dominion Special for Tobacco.....	8.00	3.29	4.00
Old Dominion Guano Co.'s Farmers' Friend High Grade Fertilizer	8.00	2.47	3.00
Old Dominion Guano Co.'s Farmers' Soluble Bone High Grade Special Tobacco Manure...	8.00	2.47	3.00
Old Dominion Guano Co.'s Farmers' Friend Special Tobacco Fertilizer.....	8.00	2.47	3.00
Old Dominion Guano Co.'s Osceola Tobacco Guano	8.00	2.06	3.00
Old Dominion Guano Co.'s Farmers' Friend Fertilizer	8.00	1.65	2.00
Old Dominion Guano Co.'s Old Dominion Special Wheat Guano	8.00	1.65	2.00
Old Dominion Guano Co.'s Old Dominion Soluble Tobacco Guano	8.00	1.65	2.00
Old Dominion Guano Co.'s Bullock's Cotton Guano	8.00	1.65	2.00
Old Dominion Guano Co.'s Soluble Guano....	8.00	1.65	2.00
Old Dominion Guano Co.'s Peanut Grower...	8.00	1.00	4.00
Old Dominion Guano Co.'s Miller's Special Wheat Mixture	8.00	....	4.00
Old Dominion Guano Co.'s 7-7-7 Truck Guano.	7.00	5.76	7.00
Old Dominion Guano Co.'s Potato Manure...	7.00	4.12	8.00
Old Dominion Guano Co.'s 7 Per Cent Truck Fertilizer	6.00	5.76	6.00
Old Dominion Guano Co.'s 6-7-5 Truck Guano.	6.00	5.76	5.00
Old Dominion Guano Co.'s Special Sweet Potato Guano	6.00	1.65	6.00
Old Dominion Guano Co.'s 10 Per Cent Truck Fertilizer	5.00	8.24	2.50
Powers, Gibbs & Co.'s Ahmont High Grade Acid Phosphate	14.00	....	....
Powers, Gibbs & Co.'s Fulp's Acid Phosphate.	13.00	....	....

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Powers, Gibbs & Co.'s Cotton Brand Acid Phosphate	13.00	....	....
Powers, Gibbs & Co.'s Almont Acid Phosphate.	12.00	....	....
Powers, Gibbs & Co.'s Cotton Brand Acid Phosphate	12.00	....	....
Powers, Gibbs & Co.'s Almont Acid Phosphate and Potash	10.50	....	1.50
Powers, Gibbs & Co.'s Almont Wheat Mixture	10.00	....	3.00
Powers, Gibbs & Co.'s Dissolved Bone and Potash	10.00	....	2.00
Powers, Gibbs & Co.'s Cotton-seed Meal Standard Guano	9.00	2.47	2.00
Powers, Gibbs & Co.'s Truck Farmers' Special Ammoniated Guano	8.00	3.29	5.00
Powers, Gibbs & Co.'s Cotton Brand Ammoniated Dissolved Bone	8.00	3.29	4.00
Powers, Gibbs & Co.'s Old Kentucky High Grade Tobacco Manure	8.00	2.47	3.00
Powers, Gibbs & Co.'s Cotton Belt Ammoniated Guano	8.00	2.47	2.00
Powers, Gibbs & Co.'s Carolina Golden Belt Ammoniated Guano for Tobacco.....	8.00	2.06	3.00
Powers, Gibbs & Co.'s Powers' Ammoniated Guano	8.00	2.06	2.00
Powers, Gibbs & Co.'s Gibbs' Ammoniated Guano	8.00	2.06	1.50
Powers, Gibbs & Co.'s Almont Soluble Ammoniated Guano	8.00	1.65	2.00
Powers, Gibbs & Co.'s Cotton-seed Meal Soluble Ammoniated Guano	8.00	1.65	2.00
Powers, Gibbs & Co.'s Eagle Island Ammoniated Guano	8.00	1.65	2.00
Powers, Gibbs & Co.'s Peanut Grower.....	8.00	1.00	4.00
Southern Chemical Co.'s Comet 16 Per Cent Acid Phosphate	16.00	....	....
Southern Chemical Co.'s Click's 16 Per Cent Acid Phosphate	16.00	....	....
Southern Chemical Co.'s Red Cross 14 Per Cent Acid Phosphate	14.00	....	....
Southern Chemical Co.'s Victor Acid Phosphate	13.00	....	....
Southern Chemical Co.'s Chatham Acid Phosphate	13.00	....	....
Southern Chemical Co.'s Reaper Grain Application	12.00	....	3.00
Southern Chemical Co.'s Tar Heel Acid Phosphate	12.00	....	....
Southern Chemical Co.'s Horseshoe Acid Phosphate	12.00	....	....
Southern Chemical Co.'s Quickstep Bone and Potash	11.00	....	5.00
Southern Chemical Co.'s Solid South.....	10.00	....	6.00
Southern Chemical Co.'s Winner Grain Mixture	10.00	....	4.00
Southern Chemical Co.'s Farmers' Pride Bone and Potash	10.00	....	3.00
Southern Chemical Co.'s Winston Bone and Potash	10.00	....	2.00
Southern Chemical Co.'s Mammoth Corn Grower	10.00	....	2.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Southern Chemical Co.'s Mammoth Wheat and Grass Grower	16.00	....	2.00
Southern Chemical Co.'s Sun Brand Guano..	9.00	2.06	5.00
Southern Chemical Co.'s George Washington Plant Bed Fertilizer for Tobacco.....	8.00	2.47	2.50
Southern Chemical Co.'s Pilot Ammoniated Guano Special for Tobacco.....	8.00	2.06	3.00
Southern Chemical Co.'s Electric Tobacco Guano	8.00	1.65	2.00
Southern Chemical Co.'s Electric Standard Guano	8.00	1.65	2.00
Southern Chemical Co.'s Yadkin Complete Fer- tilizer	8.00	1.65	2.00
Southern Chemical Co.'s Click's Special Wheat Compound	8.00	....	4.00
J. G. Tinsley & Co.'s Powhatan Acid Phos- phate	14.00	....	....
J. G. Tinsley & Co.'s Dissolved S. C. Bone....	13.00	....	....
J. G. Tinsley & Co.'s Stonewall Brand Acid Phosphate	12.00	....	....
J. G. Tinsley & Co.'s Bone and Potash Mixture	10.00	....	2.00
J. G. Tinsley & Co.'s Powhatan Tobacco Fer- tilizer	9.00	2.47	3.00
J. G. Tinsley & Co.'s Tobacco Fertilizer.....	8.00	3.29	2.50
J. G. Tinsley & Co.'s Richmond Brand Guano.	8.00	2.47	3.00
J. G. Tinsley & Co.'s Peruvian H. G. Tobacco Guano	8.00	2.47	3.00
J. G. Tinsley & Co.'s Killickinick Tobacco Mix- ture	8.00	2.00	3.00
J. G. Tinsley & Co.'s Appomattox Standard Tobacco Grower	8.00	1.65	2.00
J. G. Tinsley & Co.'s Lee Brand Guano.....	8.00	1.65	2.00
J. G. Tinsley & Co.'s Stonewall Guano.....	8.00	1.65	2.00
J. G. Tinsley & Co.'s Stonewall Tobacco Guano	8.00	1.65	2.00
J. G. Tinsley & Co.'s Peanut Grower.....	8.00	1.00	4.00
J. G. Tinsley & Co.'s Special Irish Potato Guano	6.00	5.76	6.00
J. G. Tinsley & Co.'s 7 Per Cent Ammoniated Guano for Truck	6.00	5.76	6.00
J. G. Tinsley & Co.'s Irish Potato Guano.....	6.00	4.94	6.00
J. G. Tinsley & Co.'s Strawberry Grower....	6.00	3.29	4.00
J. G. Tinsley & Co.'s Top Dresser.....	5.00	9.06	....
J. G. Tinsley & Co.'s 10 Per Cent Truck Guano	5.00	8.24	2.50
S. W. Travers & Co.'s Champion Acid Phos- phate	16.00	....	....
S. W. Travers & Co.'s Dissolved Acid Phos- phate	14.00	....	....
S. W. Travers & Co.'s Standard Dissolved S. C. Bone	13.00	....	....
S. W. Travers & Co.'s Capital Dissolved Bone	12.00	....	....
S. W. Travers & Co.'s Capital Bone and Pot- ash Compound	10.00	....	2.00
S. W. Travers & Co.'s National Tobacco Fer- tilizer	8.50	1.85	2.25
S. W. Travers & Co.'s Capital Truck Fer- tilizer	8.00	3.29	3.00
S. W. Travers & Co.'s Capital Tobacco Fer- tilizer	8.00	3.29	3.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
S. W. Travers & Co.'s Big Leaf Tobacco Grower	8.00	2.47	3.00
S. W. Travers & Co.'s Capital Cotton Fer- tilizer	8.00	2.06	2.00
S. W. Travers & Co.'s National Fertilizer....	8.00	1.65	2.00
S. W. Travers & Co.'s National Special To- bacco Fertilizer	8.00	1.65	2.00
S. W. Travers & Co.'s Beef Blood and Bone Fertilizer	8.00	1.65	2.00
S. W. Travers & Co.'s Peanut Grower.....	8.00	1.00	4.00
S. W. Travers & Co.'s Special Wheat Com- pound	8.00	....	4.00
S. W. Travers & Co.'s 7 Per Cent Truck Fer- tilizer	6.00	5.76	5.00
Virginia State Fertilizer Co.'s Bull Run Acid Phosphate	16.00	....	....
Virginia State Fertilizer Co.'s Gilt Edge Brand Acid Phosphate	14.00	....	....
Virginia State Fertilizer Co.'s Clipper Brand Acid Phosphate	13.00	....	....
Virginia State Fertilizer Co.'s Lurich Acid Phosphate	12.00	....	....
Virginia State Fertilizer Co.'s Alps Brand Acid Phosphate	12.00	....	....
Virginia State Fertilizer Co.'s Mountain Top Bone and Potash	10.00	....	5.00
Virginia State Fertilizer Co.'s XX Potash Mix- ture	10.00	....	4.00
Virginia State Fertilizer Co.'s Dissolved Bone and Potash	10.00	....	2.00
Virginia State Fertilizer Co.'s Number One Soluble Bone	9.00	1.65	2.00
Virginia State Fertilizer Co.'s Highland King.	9.00	1.65	1.00
Virginia State Fertilizer Co.'s Gamecock Spe- cial for Tobacco	8.50	1.65	2.00
Virginia State Fertilizer Co.'s High Grade To- bacco Guano	8.00	2.47	3.00
Virginia State Fertilizer Co.'s Bull Dog Solu- ble Guano	8.00	2.47	3.00
Virginia State Fertilizer Co.'s Dunnington's Special Formula for Tobacco.....	8.00	2.47	3.00
Virginia State Fertilizer Co.'s Peerless Special Tobacco Guano	8.00	2.47	3.00
Virginia State Fertilizer Co.'s Buffalo Guano.	8.00	2.06	3.00
Virginia State Fertilizer Co.'s Austrian To- bacco Grower	8.00	2.06	2.00
Virginia State Fertilizer Co.'s Gilt Edge Spe- cial Tobacco Guano	8.00	2.06	2.00
Virginia State Fertilizer Co.'s Battle Ax To- bacco Guano	8.00	1.65	2.00
Virginia State Fertilizer Co.'s Virginia State Guano	8.00	1.65	2.00
Virginia State Fertilizer Co.'s Gilt Edge Brand Dissolved Bone and Potash	8.00	....	4.00
Star Brand Ground Slag.....	17.00	....	....
H. G. Southern Fertilizer Co.'s Scott's Gossy- firm Phospho	10.00	1.65	2.00
Westfield's High Grade Special Tobacco Guano	9.00	2.47	3.00

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
<i>Thomas Wakefield, Friendship, N. C.—</i>			
Pure Bone Meal Total	21.00	4.10	....
<i>Williams & Clark Fertilizer Co., Charleston, S. C.—</i>			
Standard Americus Ammoniated Bone Super- phosphate	9.00	1.85	1.00
<i>Winborne Guano Co., Norfolk, Va.—</i>			
High Grade Acid Phosphate	16.00	....	....
Standard Acid Phosphate	14.00	....	....
Best Bone and Potash.....	11.00	....	4.00
Soluble Bone and Potash.....	10.00	....	2.00
Big Triumph Guano	8.00	3.30	4.00
Farmers Select Guano	8.00	2.47	4.00
Winborne's King Guano	8.00	2.47	3.00
Winborne's Special Tobacco Guano.....	8.00	2.47	3.00
Winborne's Crop Grower	8.00	1.65	2.00
Winborne Excelsior Guano	8.00	1.65	2.00
W. C. Co.'s Gilt Edge Cotton Grower.....	8.00	2.47	5.00
Climax Peanut Guano	8.00	.82	4.00
Premium Top Dresser	6.00	7.40	3.00
Special 5-6-7 Truck Guano.....	6.00	4.10	7.00
Winborne's Tip Top Tobacco Guano.....	6.00	3.30	5.00
Winborne's Sweet Potato Guano.....	6.00	2.47	6.00
Big Crop 7 Per Cent Guano.....	5.00	5.75	5.00
Nitrate of Soda .....	....	15.00	....
Winborne's Top Dresser .....	....	7.40	3.00
Muriate of Potash .....	....	....	50.00
Sulphate of Potash .....	....	....	48.00
Genuine German Kainit .....	....	....	12.00
<i>T. W. Wood & Sons, Richmond, Va.—</i>			
Wood's Pure Animal Bone Meal.....Total	23.00	3.60	....
Ground Basic Slag	17.00	....	....
Standard H. G. Acid Phosphate.....	16.00	....	....
Standard High Grade Acid Phosphate.....	14.00	....	....
Standard Bone and Potash Mixture.....	10.00	....	2.00
Standard Corn Fertilizer	9.00	1.23	1.00
Standard Wheat Fertilizer	9.00	1.23	1.00
Standard High Grade Truck Fertilizer.....	8.00	4.93	6.00
Standard Market Grower Fertilizer.....	8.00	3.29	4.00
Standard Vegetable Fertilizer	8.00	2.47	3.00
Standard Potato Fertilizer	8.00	1.65	5.00
Standard Grain and Grass Fertilizer.....	8.00	1.65	2.00
Standard Crop Grower Fertilizer.....	8.00	1.03	2.00
Wood's Lawn Enricher	6.00	2.47	3.00
Nitrate of Soda .....	....	15.63	....
Muriate of Potash .....	....	....	50.00
Sulphate of Potash .....	....	....	48.00
Kainit .....	....	....	12.00
<i>Wessell, Dural & Co., New York—</i>			
Nitrate of Soda .....	....	14.85	....
<i>Wilson Chemical Co., Wilson, N. C.—</i>			
16 Per Cent Acid Phosphate.....	16.00	....	....
14 Per Cent Acid Phosphate.....	14.00	....	....

Name and Address of Manufacturer and Name of Brand.	Avail. Phos. Acid.	Nitrogen.	Potash.
Bone and Potash Mixture No. 3.....	10.00	....	5.00
Bone and Potash Mixture No. 2.....	10.00	....	4.00
Bone and Potash Mixture No. 1.....	10.00	....	2.00
W. C. Co.'s Tobacco Grower.....	9.00	2.25	2.00
Special Cotton Grower	8.50	1.65	2.00
S-4.50-8 for Tobacco	8.00	3.70	7.00
S-4.50-7 for Cotton	8.00	3.70	7.00
Wilson Chemical Co.'s Gold Medal Cotton Fer- tilizer	8.00	3.30	4.00
Wilson Chemical Co.'s Gold Medal Tobacco Fertilizer	8.00	3.30	4.00
Planters Formula No. 1 for Fine Tobacco....	8.00	2.47	10.00
Planters Formula No. 2 for Fine Tobacco....	8.00	2.47	7.00
W. C. Co.'s Gilt Edge Tobacco Grower.....	8.00	2.47	5.00
W. C. Co.'s Gilt Edge Cotton Grower.....	8.00	2.47	5.00
East Carolina Cotton Grower.....	8.00	2.47	3.00
East Carolina Tobacco Grower.....	8.00	2.47	3.00
Cotton States Standard	8.00	2.00	2.00
Nitrate of Soda .....	....	14.82	....
Muriate of Potash .....	....	....	50.00
Sulphate of Potash .....	....	....	50.00
H. G. 16 Per Cent Kainit.....	....	....	16.00
Genuine German Kainit			12.00

City of Winston-Salem, Winston-Salem, N. C.—

Tankage	4.25	5.74	
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The J. R. Young Fertilizer Co., Norfolk, Va.—

High Grade 16 Per Cent Acid Phosphate....	16.00		
14 Per Cent Acid Phosphate.....	14.00	....	....
Special Bone and Potash Compound.....	10.00	....	4.00
Bone and Potash Mixture.....	10.00	....	2.00
J. R. Young's 2 $\frac{3}{4}$ -9-2 Guano.....	9.00	2.26	2.00
J. R. Young's Corn Grower	9.00	1.00	2.00
J. R. Young's 4-8-4 Crop Grower.....	8.00	3.29	4.00
J. R. Young's 3-8-3 Guano for Cotton.....	8.00	2.47	3.00
J. R. Young's New Process 3-8-3 Guano for Tobacco	8.00	2.47	3.00
J. R. Young's New Process 2-8-2 Guano for Cotton, Corn and Peanuts.....	8.00	1.65	2.00
J. R. Young's Special 2-8-2 Guano.....	8.00	1.65	2.00
Pasquotank 5-6-7 Potato Grower.....	6.00	4.11	7.00
J. R. Young's Special Guano for Potatoes....	6.00	4.11	5.00
J. R. Young's Improved Fish and Bone Ma- nure	6.00	3.29	4.00
J. R. Young's 3-6-6 Special Guano for S. P...	6.00	2.47	6.00
J. R. Young's New Process Guano for Truck.	5.00	5.67	3.50
J. R. Young's 4-4-6 Special for Tobacco.....	4.00	3.29	6.00
Nitrate of Soda .....	....	14.84	....
Muriate of Potash .....	....	....	49.00
Sulphate of Potash .....	....	....	48.00
J. R. Young's German Kainit.....	....	....	12.00

LEAF TOBACCO SALES FOR SEPTEMBER, 1913.

Pounds sold for producers, first hand.....	43,777,854
Pounds sold for dealers.....	2,472,117
Pounds sold for warehouses.....	1,094,059
Total.....	47,344,030

THE BULLETIN
OF THE
NORTH CAROLINA
DEPARTMENT OF AGRICULTURE
RALEIGH

Vol. 34, No. 11

NOVEMBER, 1913

Whole No. 190

COMMERCIAL FEEDS

PUBLISHED MONTHLY AND SENT FREE TO CITIZENS ON APPLICATION.

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*Assigned by the Bureau of Soils, United States Department of Agriculture.

†Assigned by the Bureau of Animal Industry, United States Department of Agriculture.

‡Assigned by the Bureau of Plant Industry, United States Department of Agriculture.

LETTER OF TRANSMITTAL.

HON. W. A. GRAHAM,
Commissioner of Agriculture.

SIR:—I submit herewith manuscript covering the inspection and analysis of concentrated stock feeds during the past year. I recommend its publication as the November BULLETIN.

Very respectfully,

B. W. KILGORE.
State Chemist.

Approved for printing:
W. A. GRAHAM, *Commissioner.*

COMMERCIAL FEEDS

EDITED BY J. M. PICKEL, FEED CHEMIST.

In this bulletin are published the analyses of commercial feeds made since the Report of 1912. Bulletin (whole) No. 176, up to July 1913. These analyses are the work of former feed chemist, Mr. G. M. Mac-Nider*, and assistant, the late Mr. N. G. Fetzert†. The analyses disclose the fact that there was comparatively little adulteration and that the feeds, sometimes falling below, oftener rising above guarantee,—were, upon the whole, reasonably in compliance therewith.

The total number of samples analyzed and reported on here is 319. Of this number 271 were collected throughout the State by the official inspector; the rest, 48, were sent in by millers, dealers and other interested parties.

Out of 271 guarantees on protein, fat and fiber respectively, 70 were below, 189 above and 12 on a level with the guarantee in protein; 67 were below, 203 above and 1 on a level with guarantee in fat; in the case of fiber, 78 were not up to guarantee, 184 were better than guarantee, and 9 were on a level with the guarantee. As a rule, the variations from guarantee, above or below, are not great, a fraction of a per cent. generally.

REQUIREMENTS OF THE STATE FEED LAW.‡

The following rulings and regulations adopted by the Board of Agriculture under authority of Section 9 of the State Feed Law gives the chief points of the law with which every manufacturer must comply before offering feeds for sale in this State, also the rulings and definitions which have been adopted for the enforcement of the law.

First. All manufacturers, agents, or dealers who propose to sell or offer for sale any commercial feed in this State must apply to the Commissioner of Agriculture for blank forms on which they will be required to register the name or brand of the feed which they propose to sell, their own names and addresses, and also the places where their goods are manufactured: *Provided*, if a person desiring to so register is not the actual manufacturer, he may be permitted to register and guarantee the product, using the words "manufactured for and guaranteed by." They must also give the guaranteed analysis of their goods, stating the minimum percentage of protein and fat which they contain and the maximum percentage of crude fiber. They must also register the various ingredients of which their feeds are composed.

Second. All feeds must be offered for sale in sacks or packages of uniform capacity, as prescribed in Section 1 of the Act; that is, bags or packages must contain 25, 50, 75, 100, 125, 150, 175, or 200 pounds each. Manufacturers or dealers will be required to furnish the analysis tags

*Resigned June 15, 1913.

Died July 29, 1913.

‡Reprint from Bulletin of November, 1912.

which must be attached to these sacks or packages. On these tags must be clearly printed all the essential information given in the registration above, as illustrated below. Said tags must measure not less than $4\frac{1}{2} \times 2\frac{1}{2}$ inches. Guarantee tags must be printed in plain type with black ink. Rubber stamps will not be recognized on guarantee tags.

Third. Three guarantees are required, viz.: the minimum percentage of crude protein and crude fat and the maximum percentage of crude fiber. In other words, the crude protein and crude fat in a manufacturer's goods must not be less than his guarantee, and the fiber must not be above his guarantee. The percentage of carbohydrates may be stated, but this is not required. The names of the ingredients of which the feed is composed must be plainly printed on the tag.

Fourth. Definitions have been adopted for a number of feeds. In such cases where a feed or feed material is covered by a definition the feed must correspond within reasonable limits to the definition which has been adopted for it. With all feeds covered by definitions and all other feeds or mixtures of feeds the manufacturer is required to make his own minimum guarantee of protein and fat and his maximum guarantee of fiber: *Provided*, that no mixed feeds will be accepted for registration or allowed to be offered for sale in this State that contain less than 10 per cent crude protein, except mixtures of whole or partially ground grains.

Fifth. When grain screenings containing weed seeds which have feeding value are used in mixed feeds such screenings and seeds must be ground in such manner as to destroy the viability of the seeds.

Sixth. It is optional with manufacturers or sellers whether the sack be branded, although that is always desired; but the required items must always be printed on the tag in black-colored ink, but not printed with a rubber stamp. The tax stamp must be affixed to the tag, preferably alongside the printed matter, but in case of necessity may be attached to the back of the tag.

Seventh. Feeds may be shipped in bulk from one manufacturer direct to another manufacturer who expects to subsequently sack and tag the same; but in this case the shipper, in consideration of this permission, must notify this Department at the time of the shipment of the name and consignee and the tonnage shipped; otherwise, the whole shipment will be subject to seizure as being untagged and unstamped.

Eighth. The principal adulterants employed in the feed trade are oat hulls, barley hulls, rice hulls, corncobs, peanut shells, screenings, corn bran, and cotton-seed hulls. Some of the above may be found legitimately in a feed consequent to the grinding of the whole seed, but when used out of proper proportion or in excess of the amount obtained in grinding the whole seed, or when foreign to the product, or if injurious to the health of domestic animals, will be considered an adulteration.

Ninth. If any substance, such as chaff, screenings, damaged, faulty, or unlike seeds or grains or foreign materials be mixed with or added to feeds as an adulterant and not plainly marked on the package containing it or in which it is offered for sale, showing the true composi-

tion of the mixture, it will be considered a violation of the law; *e. g.*, if oats be mixed with screenings and shrunken seeds or barley, the proper method of branding would be "Oats and Screenings," "Oats and Barley."

Tenth. When wheat bran and screenings are mixed, the mixture shall be branded "Wheat Bran and Screenings," and the word "Screenings" shall appear in the same size type as the words "Wheat Bran."

Eleventh. The sale of poultry and cattle feed which contain poisonous weed seeds in appreciable quantities, such as corn cockle and jimson weed (Jamestown weed), are forbidden.

Twelfth. When corn bran is mixed with wheat bran, the mixture shall not be branded "Bran," but shall be branded "Mixed Bran," or be sold under a trade name, and be so registered.

Thirteenth. When corn bran is mixed with wheat bran and wheat middlings, the mixture shall not be branded "Bran and Middlings," or "Bran and Middlings Mixed," but shall be branded "Mixed Feed" or "Feed," or be sold under a trade name, and be so registered.

Fourteenth. When corn bran is mixed with wheat middlings, the mixture shall not be branded "Middlings" or "Middlings and Bran," but shall be branded "Mixed Feed" or "Feed," or be sold under some trade name, and be so registered.

Fifteenth. No feed shall be registered or allowed on sale in this State under a name that is misleading as to its quality.

Sixteenth. The Commissioner shall have the power to require registration annually of any or all commercial feeds sold, offered or exposed for sale in this State.

Seventeenth. The Commissioner shall have the power to refuse to allow any manufacturer, importer, jobber, broker, agent, dealer, or any person or persons to lower the registration or guaranteed analysis of his or their product or products during the calendar year, unless satisfactory reasons are presented for making such change or changes.

Eighteenth. All cracked corn sold, offered or exposed for sale in this State made from damaged corn shall be branded "Damaged Cracked Corn" or "Cracked Corn Made from Damaged Corn."

The following definitions for commercial feeds have been adopted by the Association of Feed Control Officials of the United States. Before these definitions were adopted by this Association the manufacturers affected were given hearings and every effort made to make the definitions accurate and fair. Definitions for products not included in this list will be added as soon as adopted by the Association:

DEFINITIONS.*

Meal is the clean, sound, ground product of the entire grain, cereal, or seed which it purports to represent: *Provided*, that the following meals, qualified by their descriptive names, are to be known as, *viz.*: *Corn Germ Meal* is a product in the manufacture of starch, glucose, and other corn products, and is the germ layer from which a part of the corn oil has been extracted. *Linseed Meal* is the ground residue after extraction of part of the oil from ground flaxseed.

*Reprint from Bulletin of November, 1912.

Grits are the hard, flinty portions of Indian corn without hulls and germ.

Hominy Meal, *Hominy Feed*, or *Hominy Chop* is a mixture of the bran coating, the germs and a part of the starch portion of the corn kernel.

Corn Feed Meal is the sifting obtained in the manufacture of cracked corn and table meal made from the whole grain.

Corn Bran is the outer coating of the corn kernel.

Wheat Bran is the coarse outer coating of the wheat berry.

Standard Middlings or *Shorts* are the fine particles of the outer and inner bran separated from the bran and white middlings.

Shipstuff or *Wheat Mixed Feed* is a mixture of the products other than the flour obtained from the milling of the wheat berry.

Red Dog is a low-grade wheat flour containing the finer particles of the bran.

Oat Groats are the kernels of the oat berry with the hulls removed.

Oat Shorts are the covering of the oat grain lying immediately inside the hull, being a fuzzy material carrying with it considerable portions of the fine floury part of the groat obtained in the milling of rolled oats.

Oat Middlings are the floury portion of the groat obtained in the milling of rolled oats.

Oat Hulls are the outer chaffy coverings of the oat grain.

Rice Hulls are the outer chaffy coverings of the rice grain.

Rice Bran is the cuticle beneath the hull.

Rice Polish is the finely powdered material obtained in polishing the kernel.

Flax Plant By-product is that portion of the flax plant remaining after the separation of the seed, the bast fiber and a portion of the shives, and consists of flax shives, flax pods, broken and immature flax seeds and the cortical tissue of the stem.

Buckwheat Shorts or *Buckwheat Middlings* are that portion of the buckwheat grain immediately inside the hull after separation from the flour.

Blood Meal is ground dried blood.

Meat Scrap and *Meat Meal* are the ground residues from animal tissue exclusive of hoof and bone. If they contain any considerable amount of bone they must be designated *Meat and Bone Scrap*, or *Meat and Bone Meal*. If they bear a name descriptive of their kind, composition, or origin, they must correspond thereto.

Cracklings are the residue after partially extracting the fats and oils from the animal tissue. If they bear a name descriptive of their kind, composition, or origin, they must correspond thereto.

Digester Tankage is the residue from animal tissue, exclusive of hoof and horn, specially prepared for feeding purposes by tanking under live steam, drying under high heat, and suitable grinding. If it contains any considerable amount of bone it must be designated *Digester Meat and Bone Tankage*.

Distillers' Dried Grains are the dried residue from cereals obtained in the manufacture of alcohol and distilled liquors. The product shall bear the designation indicating the cereal predominating.

Brewers' Dried Grains are the properly dried residue from cereals obtained in the manufacture of beer.

Malt Sprouts are the sprouts of the barley grain. If the sprouts are derived from any other malted cereal, the source must be designated.

Alfalfa Meal is the entire alfalfa hay ground, and does not contain an admixture of ground alfalfa straw or other foreign materials.

Chop is a ground or chop feed composed of one or more different cereals or by-products thereof. If it bears a name descriptive of the kind of cereals it must be made exclusively of the entire grains of those cereals.

Screenings are the smaller imperfect grains, weed seeds, and other foreign material having feeding value, separated in cleaning the grain.

The following definition for cotton-seed feed has been adopted by the Board of Agriculture, but is not included in the list of definitions of the Association of Feed Control Officials:

Cotton-seed Feed. All mixtures of cotton-seed meal and hulls containing less than 38.62 per cent protein shall be branded Cotton-seed Feed, or a name may be given which does not contain the word "meal" or any other word that might be misleading.

HEARINGS.*

When a sample of commercial feed examined shows variation from the guarantees, the dealer or manufacturer from whom the sample was taken shall be given an opportunity to be heard in his defense by the Commissioner before the facts may be certified to the proper prosecuting attorney.

It is the duty of the Department of Agriculture to regularly inspect the feeds offered for sale in the State and to see that all feeds bear the tax stamp and are properly labeled. The Department is required to collect and analyze at least one sample of every brand of feed found on sale in the State during the year and to publish the results for the benefit of those interested in this class of goods.

The Department will be glad, at any time, to furnish information regarding the character and value of any class of feed.

TERMS USED IN ANALYSIS.

Ash. This is the incombustible part of the plant, earthy matter drawn from the soil by the plant, and taken over into the animal organism from plants.

Protein. This is the nitrogenous portion of the plant. Lean meat, white of eggs, curd of milk, gluten of grain are examples.

Fiber. The frame-work of the plant; trunk and stem are hardened fiber mixed with mineral and other matter; cotton is almost pure fiber.

Fat. The portion of plant soluble in ether is classed as fat, but includes small quantity of substances other than fats. Cotton-seed oil, olive oil, peanut oil, the oils of cereals are examples. Tallow, lard, butter and the various animal oils and fats fall into this class.

Nitrogen-free Extract. Starch, the various sugars, gums are examples.

Carbohydrates. This is a general term, including fiber and nitrogen-free extract.

*Reprint from Bulletin of November, 1912.

ANIMAL FEEDING AND NUTRITION.

A fundamental distinction between plants and animals is this: Plants manufacture, so to speak, foods; animals consume, but cannot manufacture, food. They merely transform—more or less modify—the food they get from plants, utilize it for their own growth and maintenance and for doing work, or else store it up in their bodies or, as in the case of milk, excrete it.

Animals get the mineral matter for forming bone from plants, a small portion also from water. The function of the carbohydrates and fats in animal nutrition is the production of warmth and energy; for this purpose fat has two and four-tenths the value of carbohydrate pound for pound. The function of protein is to build up, repair and sustain the vital portions of the animal organism,—blood, muscle, nerve, brain; the fats and carbohydrates cannot do this. Protein is capable also of being oxidized, or burned, in the body and producing warmth and energy; and in the absence of adequate fats and carbohydrates is thus utilized; but this is, beside being extravagant, unwholesome. A well balanced ration is one that contains protein, fat, carbohydrate in proper proportion to meet the needs of the animal. These needs vary with the kind of animal, its age and uses.

The following are excellent hand-books on animal feeding and nutrition:—

“Feeds and Feeding” by Prof. W. A. Henry; “Profitable Stock Feeding” by Prof. H. W. Smith; “Manual of Cattle Feeding” by Prof. H. P. Annsby; “The Feeding of Animals” by W. H. Jordan.

COMPOSITION OF SOME PURE UNADULTERATED FEEDING STUFFS.

Compiled from “*Henry's Feeds and Feeding*,” whose tables are taken mainly from Farmers' Bulletin 22, U. S. Dept. of Agriculture.

By comparing the analyses in this table with the analyses of feeding stuffs, collected in this State, whose analyses are published in this bulletin, one may gain an idea of the purity and worth of these feeding stuffs.

	Percentage Composition		
	Protein	Fat	Fiber
Corn, dent.....	10.3	5.0	2.2
Flint.....	10.5	5.0	1.7
Meal.....	9.2	3.8	1.9
Cob.....	2.4	0.5	30.1
Bran.....	9.0	5.8	12.7
Wheat.....	11.9	2.1	1.8
Bran.....	15.4	4.0	9.0
Middlings.....	15.6	4.0	4.6
Shorts.....	14.9	4.5	7.4
Screenings.....	12.5	3.0	4.9
Oats.....	11.8	5.0	9.5
Hulls.....	3.3	1.0	29.7
Rice.....	7.4	0.4	0.2
Hulls.....	3.0	0.7	35.7
Bran.....	12.1	8.8	9.5
Polish.....	11.7	7.3	6.3
Cotton-seed Meal.....	42.3	13.1	5.6
Hulls.....	4.2	2.2	46.3

UNADULTERATED FEEDING STUFFS—*Continued.*

	Percentage Composition		
	Protein	Fat	Fiber
Fodder corn, field cured.....	4.5	1.6	14.3
Green.....	1.8	0.5	5.0
Corn, stover, field cured.....	3.8	1.1	19.7
Husks, field cured.....	2.5	0.7	15.8
Leaves, field cured.....	6.0	1.4	21.4
Hay from mixed grasses.....	7.4	2.5	27.2
Kentucky blue grass.....	7.8	3.9	23.0
Red clover.....	12.0	3.3	24.0
In bloom.....	12.4	4.5	33.8
Alfalfa.....	14.3	2.2	25.0
Pea vine.....	13.7	2.3	24.7
Peanut vines (without nuts).....	10.7	4.6	23.6
Wheat straw.....	3.4	1.3	38.1
Oat straw.....	4.0	2.3	37.0
Chaff.....	4.0	1.5	34.0
Wheat chaff.....	4.5	1.4	36.0
Corn silage.....	1.7	0.8	6.0

	Percentage Composition			
	Water	Protein	Fat	Fiber
Potato.....	78.9	2.1	0.1	0.6
Sweet potato.....	71.0	1.5	1.3	0.4
Beets.....	88.5	1.5	0.1	0.9
Turnip.....	90.5	1.1	0.2	1.2
Carrots.....	88.6	1.1	0.4	1.3
Cabbage.....	90.5	2.4	0.4	1.5
Beet pulps.....	89.8	0.9	---	2.4

ADULTERANTS.*

The following materials when mixed with feeds without sufficient labeling to indicate their presence are considered adulterants: corn bran, rice hulls, ground corncobs, peanut hulls, peanut middlings, oat hulls, mill sweepings, screenings, cotton-seed hulls, and similar products.

ANALYSES OF FEED ADULTERANTS.

	Protein (N x 6.25) %	Fat (Ether Extract) %	Fiber %	Nitrogen- free Extract %	Water %	Ash %
Corn bran.....	7.00	2.82	11.89	65.44	11.08	1.77
Rice Hulls.....	3.60	0.70	35.70	38.60	8.20	† 13.20
Corn Cobs.....	2.40	0.50	30.10	54.90	10.70	† 1.40
Peanut Hulls.....	4.56	0.81	67.31	---	---	2.17
Spanish Peanut Hulls.....	10.12	2.70	31.33	29.98	5.89	19.98
Peanut Middlings.....	8.75	0.88	40.75	---	---	16.75
Oat Hulls.....	2.63	1.08	31.49	53.83	5.64	5.33
Wheat Screenings.....	13.88	2.80	3.49	64.71	10.75	4.37
Cotton-seed Hulls with lint.....	3.25	1.12	46.92	40.11	6.05	2.55
Cotton-seed Hulls, delinted.....	2.40	0.31	36.49	50.22	8.20	2.38

ANALYSES OF SAMPLES

ANALYSES OF

Laboratory Number	Brand Name from Label	Manufacturer or Wholesaler	Retailer	Date of Collection	Claimed Weight of Package—Lbs.	Price
6115	Wheat Bran.....	Acme-Evans Co., Richmond, Va.	The Stone Co., Winston-Salem.	Jan. 27, '13	100	\$1.50
6120	Coarse Wheat Bran.....	do.....	Wilmington Broker Co., Wilmington.	Jan. 28, '13	100	1.60
6420	Wheat Bran.....	Austin Heaton Co., Durham, N. C.	May and Pa. Co., Durham.	Apr. 10, '13	100	1.40
6443	do.....	do.....	do.....			
6054	Ballard's Wheat Bran.....	Ballard & Ballard Co., Louisville, Ky.	T. P. Nash, Elizabeth City	Jan. 11, '13	100	1.50
6063	do.....	do.....	W. S. White & Co., Elizabeth City.	Jan. 11, '13	100	1.50
6172	Pure Wheat Bran.....	Dan Valley Mills, Danville, Va.	T. M. Benton, Winston.	Feb. 4, '13	100	1.50
6117	do.....	Dunlop Milling Co., Clarksville, Tenn.	B. F. Mitchell Co., Wilmington.	Jan. 27, '13	100	1.50
6200	do.....	do.....	The Patterson Co., Greensboro.	Feb. 5, '13	100	1.60
6184	Wheat Bran.....	Forsyth Roller Mills, Winston, N. C.	J. Emre Cox, Winston.	Feb. 4, '13	100	1.50
6191	Pure Wheat Bran.....	Harrisonburg Milling Co., Harrisonburg, Va.	Elmore-Maxwell Co., Greensboro.	Feb. 5, '13	100	1.50
6204	do.....	Liberty Mills, Nashville, Tenn.	Wide Awake Hay and Grain Co., Greensboro.	Feb. 5, '13	100	1.50
6066	do.....	Model Mill Co., Johnston City, Tenn.	Matthews, Weeks & Co., Rocky Mount.	Jan. 15, '13	75	1.15
6136	do.....	Mountain City Mill Co., Chattanooga, Tenn.	Adams Grain and Produce Co., Fayetteville.	Jan. 29, '13	100	1.50
6222	do.....	Middle Tennessee Milling Co., Tullahoma, Tenn.	W. A. Davis, High Point.	Feb. 6, '13	75	1.30
602	Wheat Bran.....	J. D. Moran & Co., New Market, Va.	Job P. Wyatt Sons & Co., Raleigh.	Dec. 19, '12	100	.....
6085	Pure Wheat Bran.....	Nicholas Milling Co., Harrison, Va.	The C. Woodard Co., Winston.	Jan. 16, '13	100	1.50
5962	Wheat Bran.....	North State Milling Co., Greensboro, N. C.	do.....			
6040	do.....	do.....	do.....			
6006	do.....	Pillsbury Mills, Minneapolis, Minn.	Churchill Co., Kinston.	Dec. 12, '12	100	1.50
6103	do.....	do.....	John S. McEacherns Sons, Wilmington.	Jan. 25, '13	100	1.50
6051	do.....	do.....	L. M. Savage, Greensboro.	Jan. 8, '13	100	1.65
6453	Pure Wheat Bran.....	South Side Roller Mills, Winston-Salem, N. C.	do.....			
6181	Wheat Bran.....	do.....	do.....	Feb. 4, '13	100	1.45
5966	do.....	do.....	Vogler & Hege, Winston.	Nov. 25, '12	100	1.50
5967	do.....	do.....	Jones & Hedgecock, Winston-Salem.	Nov. 25, '12	100	1.60
5968	do.....	do.....	Swann & Swann, Winston.	Nov. 25, '12	100	1.45
5969	do.....	South Side Roller Mills, Winston-Salem, N. C.	Snyder & Johnson, Winston.	Nov. 25, '12	100	1.40
6015	do.....	South Western Milling Co., Kansas City, Mo.	C. L. Spencer, New Bern.	Dec. 14, '12	100	1.60
6081	Pure Wheat Bran.....	White Star Mills, Staunton, Va.	Wilson Wholesale Co., Winston.	Jan. 16, '13	100	1.65

OF FEEDS, SEASON 1913.

WHEAT BRAN.

Laboratory Number	Guarantee, Per Cent			Analysis, Per Cent			Microscopic Analysis
	Protein	Fat	Fiber	Protein	Fat	Fiber	
6115	14.50	4.75	11.00	14.56+	5.10+	10.60—	Wheat bran.
6120	14.50	4.00	11.00	14.38—	5.14+	11.32+	do.
6420	17.00	4.00	8.25	15.13—	4.97+	10.35+	
6443	-----	-----	-----	14.50	4.95	10.22	
6054	14.50	4.10	9.00	15.19+	5.12+	8.96—	do.
6063	14.50	4.10	9.00	15.38+	4.79+	9.17+	do.
6172	14.50	4.10	9.50	13.38—	4.56+	9.35—	do.
6117	14.75	4.00	9.50	15.13+	4.27+	9.17—	do.
6200	14.75	4.00	9.50	15.00+	4.68+	8.67—	do..
6184	14.50	4.00	9.50	14.25+	5.10+	8.66—	do.
6191	14.50	4.00	9.50	14.63+	5.27+	10.16+	do.
6204	14.50	4.00	9.50	14.38—	4.48+	8.35—	do.
6066	15.04	4.00	9.00	14.94—	4.40+	9.32+	do.
6136	14.50	4.00	8.50	17.63+	4.22+	6.42—	do.
6222	15.50	5.00	9.00	-----	-----	-----	do.
6029	15.75	4.00	7.95	14.00—	4.38+	10.00+	Wheat bran, ground screenings.
6085	14.50	4.00	9.50	13.50—	4.59+	8.89—	Wheat bran.
5962	-----	-----	-----	13.38	3.33	5.82	
6040	-----	-----	-----	16.00	5.17	8.96	
6006	14.50	4.00	11.00	13.56—	4.58+	7.80—	do.
6103	14.50	4.00	11.00	15.44+	5.25+	10.49—	do.
6051	14.00	4.00	11.00	15.13+	5.28+	10.61—	do.
6453	-----	-----	-----	13.63	3.57	6.25	
6181	14.50	4.00	9.50	15.38+	4.72+	8.10—	Wheat bran; corn bran adulterant.
5966	17.13	4.09	6.30	12.00—	3.84—	7.01+	do.
5967	17.13	4.09	6.30	13.00—	4.87+	7.80+	do.
5968	17.13	4.09	6.30	14.00—	4.73+	7.78+	do.
5969	17.13	4.09	6.30	13.50—	4.45+	7.87+	do.
6015	15.25	4.00	9.50	17.25+	4.55+	9.20—	do.
6081	14.05	4.00	9.50	13.75—	4.66+	9.52+	do.

ANALYSES OF

Laboratory Number	Brand Name from Label	Manufacturer or Wholesaler	Retailer	Date of Collection	Claimed Weight of Package-Lbs.	Price
6118	Coarse Wheat Bran.....	Washburn-Crosby Co., Louisville, Ky.	D. L. Gore & Co., Wilmington.	Jan. 27, '13	100	1.50
6155	do.....	do.....	Jones & Hedgecock, Winston.	Feb. 4, '13	100	1.45
6158	do.....	Washburn-Crosby Co., Minneapolis, Minn.	W. H. Turner, Winston-Salem.	Feb. 4, '13	100	1.40
6180	do.....	do.....	Farmers' Union Agency Co., Winston.	Feb. 4, '13	100	1.40
6182	do.....	do.....	Farmers' Trade House Co., Winston.	Feb. 4, '13	100	1.40

Thirty official samples of bran were analyzed. Seventeen were above and thirteen below guarantee in protein; twenty-nine above and one below in fat; twelve above and eighteen below* in fiber.

ANALYSES OF

Laboratory Number	Brand Name from Label	Manufacturer or Wholesaler	Retailer	Date of Collection	Claimed Weight of Package-Lbs.	Price
6441	Wheat Shorts.....	Asheboro Roller Mills, Asheboro, N. C.	Asheboro Roller Mills, Asheboro.	Apr. 22, '13	75	-----
5994	do.....	Adams Grain & Prov. Co., Richmond, Va.	M. J. Best & Sons, Goldsboro.	Dec. 11, '12	100	1.60
6233	Pure Wheat Middlings.....	Acme-Evans Co., Richmond, Va.	Peeler Grain Co., Salisbury	Feb. 7, '13	75	1.35
6190	Standard Middlings.....	do.....	Elmore Maxwell Co., Greensboro.	Feb. 5, '13	100	1.60
6109	Ben Hur Middlings.....	do.....	Y. H. Knowles, Mt. Olive.	Jan. 23, '13	100	2.00
6119	Wheat Middlings.....	do.....	Wilmington Broker Co., Wilmington.	Jan. 27, '13	100	1.60
6114	Standard Middlings.....	do.....	The Stone Co., Wilmington	Jan. 27, '13	100	-----
6127	do.....	do.....	W. B. Cooper Co., Wilmington.	-----	100	1.70
6125	do.....	do.....	S. P. McNair & Co., Wilmington.	Jan. 27, '13	100	1.60
6010	Amco Middlings.....	Amendt Milling Co., Monroe, Mich.	Beaufort Grocery Co., Beaufort.	Dec. 13, '12	100	1.75
6143	Standard Middlings.....	Bay State Milling Co., Winona, Minn.	The Armfield Co., Fayetteville.	Jan. 29, '13	100	1.75
6033	do.....	do.....	Job P. Wyatt Sons Co., Raleigh.	Dec. 12, '12	100	-----
6055	Ballard Standard Middlings.	Ballard & Ballard Milling Co., Louisville, Ky.	T. P. Nash, Elizabeth City.	Jan. 11, '13	100	1.50
6064	do.....	do.....	W. S. White & Co., Elizabeth City.	Jan. 11, '13	100	1.60
6005	Standard Middlings.....	William G. Crocker, Minneapolis, Minn.	Churchill Co., Kinston	Dec. 12, '12	100	1.85
6114	Pure Wheat Middlings	Dunlap Milling Co., Clarksville, Tenn.	The Armfield Co., Fayetteville.	Jan. 29, '13	100	1.75

*NOTE—The reader will bear in mind that it is the minimum per cent of protein and fat, and maximum of fiber that is guaranteed; and the less the fiber the richer the feed.

WHEAT BRAN—*Continued.*

Laboratory Number	Guarantee, Per Cent			Analysis, Per Cent			Microscopic Analysis
	Protein	Fat	Fiber	Protein	Fat	Fiber	
6118	14.00	4.00	11.00	14.18+	5.32+	10.27—	Wheat bran; corn bran (adulterant).
615	14.50	4.00	11.00	14.75+	5.37+	10.44—	do.
6158	14.50	4.00	11.00	15.00+	5.19+	11.10+	do.
6180	14.50	4.00	11.00	14.75+	5.82+	10.46—	do.
6182	14.50	4.00	11.00	15.00+	5.43+	10.35—	do.

MIDDLINGS OR SHORTS.

Laboratory Number	Guarantee Per Cent			Analysis, Per Cent			Microscopic Analysis
	Protein	Fat	Fiber	Protein	Fat	Fiber	
6441	16.00	5.00	4.00	14.88—	4.04+	3.04—	
5994	17.00	5.04	9.44	19.31+	6.10+	7.19—	Wheat middlings
6233	15.00	4.00	8.00	16.63+	5.61+	8.20+	do.
6190	15.00	4.00	8.00	16.63+	6.30+	8.64+	do.
6109	15.00	4.00	8.00	16.25+	5.48+	8.94+	do.
6119	16.02	4.04	7.04	17.50+	5.81+	6.86—	do.
6114	15.00	4.00	9.00	15.25+	5.48+	6.92—	do.
6127	15.00	4.00	8.00	17.13+	5.90+	7.56—	do.
6125	15.00	4.00	8.00	17.38+	5.65+	6.82—	do.
6010	17.68	5.30	4.30	18.00+	5.50+	4.92+	do.
6143	17.00	5.00	8.00	17.38+	5.93+	7.41—	do.
6033	17.00	4.00	8.00	18.44+	5.95+	6.90—	do.
6055	15.69	4.26	6.87	14.69—	4.12—	4.28—	do.
6064	15.69	4.26	6.87	15.81+	3.95—	4.25—	do.
6005	15.00	4.00	8.00	17.21+	5.33+	8.40+	do.
6144	16.25	4.60	6.00	14.50—	4.20—	5.19—	do.

ANALYSES OF

Laboratory Number	Brand Name from Label	Manufacturer or Wholesaler	Retailer	Date of Collection	Claimed Weight of Package-Lbs.	Price
6067	Pure Wheat Middlings.....	Dunlap Milling Co., Clarks-ville, Tenn.	Mathews, Weeks & Co., Rocky Mount.	Jan. 14, '13	100	1.60
6074	dc	do.....	G. S. Edwards & Co., Rocky Mount.	Jan. 14, '13	100	1.60
6192	do.....	do.....	Elmore Maxwell Co., Greensboro.	Feb. 5, '13	100	1.75
6245	Wheat Shorts.....	J. A. Davis, Elkton, Va.	W. P. Ware, Reidsville.....			
6150	Tiger Middlings.....	Davis, Robinson & Co., Roanoke, Va.	Jones & Hedgecock, Wins-ton.	Feb. 4, '13	100	1.60
6440	Pure Wheat Middlings..	B. A. Eckhart Milling Co., Chicago, Ill.	L. J. Moore, Weldon.....	Apr. 18, '13	100	.....
6090	Red Hog G. Middlings....	C. A. Grambill Mfg. Co., Baltimore, Md.	Wells Grocery Co., Weldon	Jan. 16, '13	100	2.00
6072	Pure Brown Wheat Middlings	do.....	G. S. Edwards & Co., Rocky Mount.	Jan. 14, '13	100	.....
6089	Pure Wheat Middlings	do.....	Wells Grocery Co., Wilson	Jan. 16, '13	75	1.65
6094	Pure Wheat White Middlings.	do.....	Hadley-Harris Co., Wilson	Jan. 16, '13	75	1.53
5987	do.....	do.....	H. Weil & Bros., Goldsboro	Dec. 11, '12	75	1.75
5998	do.....	do.....	Bizzell & Thornton, Golds-boro.	Dec. 11, '12	75	1.75
6108	Ben Hur Middlings.....	Henneffin Mills, Minne-apolis, Minn.	Mt. Olive Grocery & Hard-ware Co., Mt. Olive.	Jan. 23, '13	100	2.00
6052	Wheat Shorts.....	Koerner Flour Mills, Rich-mond, Va.	L. M. Savage, Greenville ..	Jan. 8 '13	100	1.60
6086	Pure Wheat Shorts.....	Liberty Mills, Nashville, Tenn.	The C. Woodard Co., Wil-son.	Jan. 16, '13	100	1.80
6134	Elmco Wheat Middlings...	Listman Mill Co., LaCross, Wis.	Jams Grain & Prov. Co., Fayetteville.	Jan. 29, '13	75	1.25
6410	Wheat Middlings.....	J. D. Moran & Co., New Market, Va.	H. M. Blackwelder & Co., Concord.	Apr. 21, '13	100	1.75
5986	Wheat Shorts.....	Marshall Milling Co., Marshall, Minn.	H. Weil & Co., Goldsboro..	Dec. 11, '12	100	1.70
5991	do.....	do.....	B. G. Thompson, Golds-boro.	Dec. 11, '12	100	1.60
6131	Standard Middlings.....	Mayo Milling Co., Rich-mond, Va.	J. W. Carter, Maxton.....	Jan. 28, '13	100	1.86
6433	Wheat Shorts.....	North State Milling Co., Greensboro, N. C.	Cobles Grocery, Burlington	Apr. 14, '13	100	1.85
5963	do.....	do.....				
6041	Shorts	do.....				
5983	Pure Wheat Middlings	North Western Milling Co., Minneapolis, Minn.	W. C. Moye & Son, Golds-boro.	Dec. 11, '12	100	1.60
5990	do.....	North Western Consoli-dated, Milling Co., Minne-apolis, Minn.	B. G. Thompson, Golds-boro.	Dec. 11, '12	100	1.60
5995	do.....	do.....	M. J. Best & Son, Golds-boro.	Dec. 11, '12	100	1.60
6162	XXX Comet Middlings ..	do.....	Winston Grain Co., Wins-ton-Salem.	Feb. 4, '13	100	1.65
6070	Wheat Middlings.....	North Western Consoli-dated Milling Co., Minne-apolis, Minn.	Mathews, Weeks & Co., Rocky Mount.	Jan. 14, '13	100	1.50
6075	XXX Comet Middlings ..	do.....	G. S. Edwards & Co., Rocky Mount.	Jan. 14, '13	100	1.65

MIDLINGS OR SHORTS—Continued.

Laboratory Number	Guarantee, Per Cent			Analysis, Per Cent			Microscopic Analysis
	Protein	Fat	Fiber	Protein	Fat	Fiber	
6067	16.25	4.60	6.00	16.13—	5.29+	6.26+	Wheat middlings.
6074	16.25	4.60	6.00	16.50+	4.24—	5.40—	do.
6192	16.25	4.60	6.00	15.60—	4.77+	6.26+	
6245	-----	-----	-----	14.50	4.71	6.17	do.
6150	16.00	5.00	7.00	17.25+	4.77—	6.63—	do.
6440	15.00	4.00	6.00	17.63+	4.76+	7.42+	
6090	17.50	6.50	7.00	13.25—	3.82—	4.16—	do.
6072	16.70	3.50	8.30	14.50—	5.31+	7.85—	do.
6089	14.75	3.25	3.25	14.63—	3.64+	2.65+	do.
6094	14.75	3.25	3.25	13.88—	3.32+	2.10—	Wheat, white middlings.
5987	16.85	4.40	3.00	13.38—	3.21—	2.66—	do.
5998	16.85	4.40	3.00	14.00—	3.63—	2.66—	do.
6108	15.00	4.00	8.00	17.13+	5.43+	6.79—	Wheat middlings.
6052	15.00	4.00	7.53	13.63—	4.65+	6.19—	do.
6086	16.00	4.00	6.00	15.75—	3.38—	5.78—	do.
6134	17.55	6.15	8.16	17.75+	5.72—	6.70—	do.
6410	16.25	5.00	4.00	15.63—	4.24—	3.67—	
5986	17.00	5.04	9.44	19.63+	5.93+	7.28—	do.
5991	17.00	5.04	9.44	19.13+	6.02+	7.51—	do.
6131	15.00	4.00	8.00	17.63+	5.47+	7.44—	do.
6433	14.50	3.70	2.10	14.63+	4.27+	2.62+	
5963	-----	-----	-----	10.88	1.97	1.24	
6041	-----	-----	-----	14.50	3.70	2.10	
5983	15.00	4.50	10.00	16.38+	6.19+	9.15—	do.
5990	15.00	4.50	10.00	16.50+	6.20+	9.59—	do.
5995	15.00	4.50	10.00	16.75+	6.27+	7.89—	do.
6162	16.50	4.00	3.00	19.13+	6.16+	1.85—	do. (Red Dog).
6070	16.00	4.50	10.00	16.75+	6.15+	8.40—	do.
6075	18.50	4.00	3.00	19.75+	6.28+	1.77—	do. (Red Dog).

ANALYSES OF

Laboratory Number	Brand Name from Label	Manufacturer or Wholesaler	Retailer	Date of Collection	Claimed Weight of Package-Lbs.	Price
6002	Pure Wheat Middlings	Northwestern Consolidated Milling Co., Minneapolis, Minn.	Bizzell & Thornton, Goldsboro.	Dec. 11, '12	100	1.75
6068	Standard Middlings	New Prague Flouring Mill Co., New Prague, Minn.	Mathews, Weeks & Co., Rocky Mount.	Jan. 14, '13	100	1.40
6142	Brown Middlings	Patapsco Mills, Baltimore, Md.	J. H. Culbreth & Co., Fayetteville.	Jan. 29, '13	75	1.30
6073	XX Daisy Middlings	Pillsbury Mills, Minneapolis, Minn.	G. S. Edwards & Co., Rocky Mount.	Jan. 14, '13	100	1.70
5999	do	do	Bizzell & Thornton, Goldsboro.	Dec. 11, '12	100	2.00
6178	do	do	Farmers' Union Agency Co. Winston-Salem.	Feb. 4, '13	100	1.75
6175	do	do	T. M. Benton, Winston	Feb. 4, '13	100	1.80
6151	do	do	Jones & Hedgecock, Winston	Feb. 4, '13	100	1.80
6069	Daisy Middlings	do	Mathews, Weeks & Co., Rocky Mount.	Jan. 14, '13	100	1.70
6080	do	do	Geo. J. Hales & Bro., Rocky Mount.	Jan. 14, '13	100	1.70
6132	Standard Middlings	W. F. Richardson & Co., Richmond, Va.	Currie-Patterson Co., Maxton.	Jan. 28, '13	100	2.00
6202	do	Russell Miller Milling Co., Minneapolis, Minn.	Scott Sparger Co., Greensboro.	Feb. 5, '13	100	1.90
6128	do	do	W. B. Cooper Co., Wilmington.	-----	100	1.70
6123	do	do	McNair & Pearsall, Wilmington.	Jan. 27, '13	100	1.60
6112	do	do	J. W. Brooks, Wilmington.	Jan. 27, '13	100	1.65
6023	do	S. D. Scott, Norfolk, Va.	C. B. Hill, New Bern	Dec. 14, '12	100	1.80
6414	Gray Shorts	South Western Milling Co., Kansas City, Mo.	Cleve & Moose, Concord	Apr. 2, '13	100	-----
6008	Standard Middlings	N. R. Savage & Son, Richmond, Va.	Ray Dawson, Kinston	Dec. 12, '12	100	1.75
6091	Red Dog Pure Wheat Middlings.	Star & Crescent Milling Co., Chicago, Ill.	Wells Grocery Co., Wilson	Jan. 16, '13	100	-----
6095	do	do	Hadley Harris Co., Wilson	Jan. 16, '13	100	2.00
6131	Pure Shorts	Washburn-Crosby Co., Louisville, Ky.	Hall & Pearsall, Wilmington.	-----	100	1.80
6164	Standard Middlings	Washburn-Crosby Co., Minneapolis, Minn.	Winston Grain Co., Winston.	Feb. 4, '13	100	1.40
6168	do	do	Farmers' Union Agency, Winston-Salem.	Feb. 4, '13	100	1.40
6171	do	do	T. M. Benton, Winston	Feb. 4, '13	100	1.45
6154	do	do	Jones & Hedgecock, Winston.	Feb. 4, '13	100	1.45
6202	do	do	The Patterson Co., Greensboro.	Feb. 5, '13	100	1.70
6185	Red Dog Middlings	Bay State Milling Co., Winona, Minn.	Elmore Maxwell Co., Greensboro.	Feb. 5, '13	100	1.80
6137	Elmco Red Dog Middlings	Listman Mill Co., LaCross, Wis.	Adams Grain & Produce Co., Fayetteville.	Jan. 29, '13	100	1.90
6203	Red Dog Middlings	Moon-Taylor Co., Lynchburg, Va.	Wide-Awake Hay and Grocery Co., Greensboro.	Feb. 5, '13	100	2.00
6406	Red Dog No. 1. Middlings	Warren Milling Co., Nashville, N. C.	-----	-----	-----	-----

MIDDLINGS OR SHORTS—*Continued.*

Laboratory Number	Guarantee, Per Cent			Analysis, Per Cent			Microscopic Analysis
	Protein	Fat	Fiber	Protein	Fat	Fiber	
6002	15.00	4.50	10.00	15.88+	6.13+	9.28—	Wheat middlings.
6068	17.00	5.07	6.05	18.13+	6.14+	5.15—	do.
6142	16.70	3.50	8.30	14.63—	5.14+	8.15—	do.
6073	16.00	4.50	4.00	19.06+	4.82+	3.26—	do. (Red Dog).
5999	16.00	4.50	4.00	18.88+	5.16—	3.79—	do.
6178	16.00	4.50	4.00	17.88+	4.99+	2.98—	do. (Red Dog).
6175	16.00	4.50	4.00	17.88+	4.87+	3.05—	do. (Red Dog).
6151	16.00	4.50	4.00	16.88+	3.97—	2.00—	do. (Red Dog).
6069	16.00	4.50	4.00	18.69+	5.39+	3.80—	do.
6080	16.00	4.50	4.00	18.63+	4.91+	2.72—	do. (Red Dog).
6132	15.00	4.50	8.00	15.88+	5.22+	8.67+	do.
6202	15.00	4.00	9.00	18.00+	5.45+	7.95—	do.
6128	15.00	4.00	9.00	18.38+	6.07+	7.21—	do.
6123	15.00	4.00	9.00	18.00+	6.12+	6.18—	do.
6112	15.00	4.00	9.00	18.13+	6.09+	6.87—	do.
6023	15.00	4.00	8.00	17.88+	5.80+	7.92—	do.
6414	17.40	4.85	5.90	18.00+	4.52—	5.91	
6008	15.00	4.00	8.00	17.00+	5.96+	7.82—	do.
6091	16.00	4.00	3.00	17.25+	4.59+	3.18+	do. (Red Dog).
6095	16.00	4.00	3.00	17.63+	4.74+	3.10+	do. (Red Dog).
6131	15.00	4.00	7.00	16.25+	4.69+	6.95—	do.
6164	15.00	4.00	8.00	16.50+	5.89+	8.18+	do.
6168	15.00	4.00	8.00	16.63+	5.69+	7.98—	do.
6171	15.00	4.00	8.00	17.25+	6.02+	7.15—	do.
6154	15.00	4.00	8.00	17.75+	5.64+	7.10—	do.
6201	15.00	4.00	8.00	16.50+	5.91+	7.96—	do.
6185	18.00	4.50	2.50	21.13+	5.26+	1.42—	do. (Red Dog).
6137	15.65	3.98	3.17	15.88+	3.41—	0.62—	do. (Red Dog).
6203	18.00	4.00	2.50	18.13+	5.27+	1.32—	do. (Red Dog).
6406	-----	-----	-----	13.50	3.04	2.94	

ANALYSES OF

Laboratory Number	Brand Name from Label	Manufacturer or Wholesaler	Retailer	Date of Collection	Claimed Weight of Package-Lbs.	Price
6152	Red Dog Middlings.....	Washburn-Crosby Mills, Louisville, Ky.	Jones & Hedgecock, Winston.	Feb. 4, '13	100	1.80
5976	Adrian Flour.....	Washburn-Crosby Co., Minneapolis, Minn.	Cramer Bros., Winston.....	Nov. 30, '12	100	-----
6156	do.....	do.....	W. H. Turner, Winston-Salem.	Feb. 4, '13	100	1.70
6194	do.....	do.....	The Patterson Co., Greensboro.	Feb. 5, '13	100	2.00
6213	do.....	do.....	Parker & Clark, High Point.	Feb. 6, '13	100	2.00

Seventy-six official samples of middlings or shorts were analyzed. Sixty-three were above and thirteen below guarantee* in protein; fifty-six above and twenty below in fat; fourteen above and sixty-two below in fibre.

ANALYSES OF MIXTURES OF BRAN AND MID-

Laboratory Number	Brand Name from Label	Manufacturer or Wholesaler	Retailer	Date of Collection	Claimed Weight of Package-Lbs.	Price
6249	Wheat Bran and Middlings	Concord Milling Co., Concord, N. C.	J. W. Cline, Concord.....	Feb. 12, '13	100	1.75
5959	Wheat Bran and Shorts.....	Hickory Milling Co., Hickory, N. C.	-----	-----	-----	-----
5930	do.....	Hill & Young, Lexington, N. C.	-----	-----	-----	-----
6236	Pure Wheat Bran and Shorts.	Salisbury, Milling Co., Salisbury, N. C.	H. Z. White, Salisbury.....	Feb. 7, '13	75	1.35
6044	Bran and Shorts.....	Statesville Flour Mill Co., Statesville, N. C.	-----	-----	-----	-----
5978	do.....	do.....	-----	-----	-----	-----
6247	Pure Wheat Bran, Shorts and Screenings.	China Grove Roller Mills, China Grove, N. C.	Cook and Harris, Concord.	Feb. 12, '13	100	1.85
6228	do.....	do.....	Overman & Co., Salisbury.	Feb. 7, '13	75	1.30
6411	do.....	do.....	H. W. Blackmeder & Co., Concord.	Apr. 21, '13	100	1.65
6417	Wheat Bran and Screenings.	Liberty Mills, Nashville, Tenn.	Chas. Messick, Charlotte ..	Apr. 22, '13	75	1.05
6032	Patapsco Hog Feed.....	C. A. Gambrill Mfg. Co., Baltimore, Md.	Wilson Wholesale Co., Wilson.	Jan. 16, '13	-----	-----
6096	do.....	do.....	Hadley-Harris Co., Wilson.	Jan. 16, '13	100	2.00

Eight official samples of the above mixtures were analyzed. Three were above, five below the guarantee in protein; seven above and one below in fat; three above and five below* in fibre.

*See footnote on page 14.

MIDDLINGS OR SHORTS—*Continued.*

Laboratory Number	Guarantee, Per Cent			Analysis, Per Cent			Microscopic Analysis
	Protein	Fat	Fiber	Protein	Fat	Fiber	
	16.00	4.00	5.00	15.69—	3.79—	3.51—	Wheat middlings (Red Dog).
5976	17.00	5.00	4.00	17.13+	4.16—	2.20—	do. (Red Dog).
6156	17.00	5.00	4.00	20.00+	5.97+	3.38—	do. (Red Dog).
6194	17.00	5.00	4.00	18.50+	5.50+	3.31—	do. (Red Dog).
6213	17.00	5.00	4.00	19.13+	5.96+	3.60—	do. (Red Dog).

DLINGS, AND OF BRAN, MIDDLINGS AND SCREENINGS.

Laboratory Number	Guarantee, Per Cent			Analysis, Per Cent			Microscopic Analysis
	Protein	Fat	Fiber	Protein	Fat	Fiber	
6249	17.50	4.63	7.36	15.25—	4.61	7.14—	Wheat bran and middlings.
5959	-----	-----	-----	13.63	4.42	6.25	
5980	-----	-----	-----	14.25	5.40	7.87	
6236	14.50	4.40	8.00	14.25+	4.38—	7.21—	Wheat bran, middlings, corn bran (adulterant).
6044	-----	-----	-----	15.38	4.99	6.74	
5978	-----	-----	-----	14.38	4.71	5.60	
6247	14.00	3.22	4.90	14.13+	4.48+	6.42+	Wheat bran, middlings, screenings
6228	14.00	3.22	4.90	13.38—	4.52+	6.08+	do.
6411	14.00	3.22	4.90	13.88—	4.41+	6.2 +	
6417	14.50	4.00	9.50	15.25+	4.11+	9.23—	
6082	14.25	3.00	6.50	14.13—	3.96+	4.87—	Wheat products.
6096	14.25	3.00	6.50	12.88—	3.90+	4.93—	do.

ANALYSES OF

Laboratory Number	Brand Name from Label	Manufacturer or Wholesaler	Retailer	Date of Collection	Claimed Weight of Package-Lbs.	Price
6038	Shipstuff	Austin-Heaton Co., Durham, N. C.	W. A. Myatt, Raleigh	Dec. 19, '12	100	-----
6444	do.	do.	do.	do.	100	-----
6413	do.	do.	H. L. Parks & Co., Concord	-----	100	-----
6424	do.	do.	J. W. Ferrell, Durham	Apr. 10, '13	64	1.35
6419	do.	do.	May & Page, Durham	Apr. 10, '13	100	1.40
5953	Pure Wheat Shipstuff	Dan Valley Mills, Danville, Va.	W. C. Moye & Son, Goldsboro.	Dec. 11, '12	100	1.75
6170	do.	do.	F. M. Benton, Winston	Feb. 4, '13	100	1.75
6189	Wheat Shipstuff	do.	Elmore Maxwell Co., Greensboro.	Feb. 5, '13	100	1.65
6149	Shipstuff	do.	Jones & Hedgcock, Winston	Feb. 4, '13	100	1.65
6097	do.	Dixie Milling Co., Burlington, N. C.	-----	-----	-----	-----
6009	Pure Wheat Shipstuff	The Dunlop Mills, Richmond, Va.	Q. E. Ramsey, Beaufort	Dec. 13, '12	100	1.60
6039	Shipstuff	do.	Job P. Wyatt Sons Co., Raleigh.	Dec. 19, '12	100	-----
5975	do.	Forsyth Roller Mills, Winston, N. C.	-----	Nov. 30, '12	100	1.70
6135	Pure Wheat Shipstuff	Molt Granite Co., Haw River, N. C.	Adams Grain & Produce Co., Fayetteville.	Jan. 29, '13	100	1.50
6418	do.	Milton Mill Co., Milton, N. C.	F. B. Jones, Milton	Apr. 12, '13	100	1.65
5964	Shipstuff	North State Milling Co., Greensboro, N. C.	-----	-----	-----	-----
6202	North Star Shipstuff	do.	Wide Awake Hay & Grain Co., Greensboro.	Feb. 5, '13	100	1.70
6042	Shipstuff	do.	-----	-----	-----	-----
6196	Pure Wheat Shipstuff	Piedmont Mills, Lynchburg, Va.	The Patterson Co., Greensboro.	Feb. 5, '13	100	1.75
6428	Shipstuff	do.	Southern Feed & Grocery Co., Durham.	Apr. 10, '13	100	1.50
5958	do.	Statesville Flour Mill Co., Statesville, N. C.	-----	-----	-----	-----
5977	do.	do.	-----	-----	-----	-----
6412	do.	do.	J. E. Smith Bros, Concord	Apr. 21, '13	100	1.60
6415	do.	do.	Davidson & Wolff, Charlotte.	Apr. 21, '13	-----	-----
6045	do.	do.	-----	-----	-----	-----
6431	Peerless Shipstuff	J. Allen Smith & Co., Knoxville, Tenn.	Merchants Supply Co., Burlington.	Apr. 14, '13	100	1.60
6062	Shipstuff	do.	W. S. White & Co., Elizabeth City.	Jan. 11, '13	100	1.60
6057	do.	do.	T. P. Nash, Elizabeth City	Jan. 11, '13	100	1.50
6153	Wheat Feed	South Side Roller Mills, Winston-Salem, N. C.	J. Emra Cox, Winston	Feb. 4, '13	100	1.70
6133	Wheat Feed	Atlanta Milling Co., Atlanta, Ga.	Adams Grain & Provision Co., Fayetteville.	Jan. 29, '13	75	1.25

Twenty-three official samples of shipstuff were analyzed. Thirteen were above, and ten below guarantee in protein; eighteen above and five below in fat; thirteen above and ten below* in fiber.

*See footnote on page 16.

SHIPSTUFF.

Laboratory Number	Guarantee, Per Cent			Analysis, Per Cent			Microscopic Analysis
	Protein	Fat	Fiber	Protein	Fat	Fiber	
6038	16.00	4.50	5.50	15.88—	4.74+	7.50+	Wheat product with small amount of corn product (adulterant).
6444				15.88	4.80	5.92	
6413	16.00	4.50	5.50	16.00	4.69+	6.50+	
6424	16.00	4.50	5.50	16.00	5.11+	7.55+	
6419	16.00	4.50	5.50	16.13+	5.13+	7.75+	
5985	16.00	5.00	6.00	15.25—	5.17+	7.14+	Wheat product.
6170	16.00	5.00	6.00	15.63—	6.66+	7.52+	do.
6189	16.00	5.00	6.00	14.75—	5.40+	7.51+	do.
6149	16.00	5.00	6.00	15.38—	4.96—	6.60+	do.
6097				13.75	3.70	5.70	
6009	16.00	4.50	7.00	14.13—	4.54+	5.67—	do.
6034	14.50	4.00	7.00	14.75+	4.74+	6.54—	do.
5975	15.00	4.00	6.00	16.44+	5.23+	6.13+	do.
6135	15.00	4.00	6.00	15.00	4.61+	7.38+	do.
6418	16.76	4.50	4.71	14.13—	3.94—	3.78—	
5964				14.88	3.74	6.29	
6202	15.00	4.00	8.00	15.25+	5.18+	6.20—	do.
6042				15.88	4.05	3.95	
6196	15.00	4.00	6.00	15.88+	4.64+	6.56+	do.
6428	15.00	4.00	6.00	15.63+	4.80+	6.47+	
5958				14.38	4.68	6.03	
5977				15.00	4.70	6.42	
6412	16.00	4.00	7.00	16.75+	5.57+	6.92—	
6415	15.00	4.00	7.00	15.25+	4.47+	6.50—	
6045				14.63	4.98	6.59	
6431	14.00	4.00	7.00	14.25+	3.41—	5.06—	
6062	16.05	4.00	7.00	15.00—	3.85—	5.87—	do.
6057	16.05	4.00	7.00	15.50—	4.44+	6.38—	do.
6183	15.43	4.68	5.77	13.50+	3.51—	5.93+	Wheat product, screenings and corn product (adulterant).
6133	15.00	4.00	8.00	14.25—	4.72+	5.65—	Wheat product.

ANALYSES OF

Laboratory Number	Brand Name from Label	Manufacturer or Wholesaler	Retailer	Date of Collection	Claimed Weight of Package-Lbs.	Price
6122	Cracked Corn.....	Boney and Harper, Wilmington, N. C.	F. E. Hashagen Co., Wilmington.	Jan. 27, '13	75	1.55
6098	do.....	do.....	Holmes Grocery Co., Wilmington	Jan. 25, '13	75	1.25
6111	do.....	do.....	J. W. Brooks, Wilmington.	Jan. 27, '13	75	1.15
6007	do.....	Churchill Co., Kinston, N. C.	Churchill Co., Kinston	Dec. 12, '12	100	2.00
6022	do.....	Elm City Lumber Co., New Bern, N. C.	C. B. Hill, New Bern.....	Dec. 14, '12	100	1.80
6027	do.....	Jonathan Havens, Washington, N. C.	F. G. Paul & Bro., Washington.	Dec. 16, '12	100	1.25
6106	Pure Cracked Corn.....	John S. McEachern's Sons, Wilmington, N. C.	John S. McEachern's Sons, Wilmington.	Jan. 25, '13	75	1.20
6014	Cracked Corn.....	J. A. Meadow, New Bern, N. C.	C. L. Spencer, New Bern	Dec. 14, '12	100	1.60
6025	do.....	S. D. Scott & Co., Inc., Norfolk, Va.	C. G. Morris & Co., Washington.	Dec. 16, '12	100	1.50
6026	do.....	do.....	E. R. Mixon & Co., Washington.	Dec. 16, '12	100	1.50
6056	do.....	W. S. White & Co., Elizabeth City, N. C.	T. P. Nash, Elizabeth City.	Jan. 11, '13	100	1.40
6013	Sifted Cracked Corn.....	J. H. Branch & Co., Portsmouth, Va.	Burrus & Co., New Bern...	Dec. 14, '12	100	1.55
6024	do.....	do.....	C. B. Hill, New Bern.....	Dec. 14, '12	100	1.80
6104	Corn Chops.....	Boney & Harper, Wilmington, N. C.	John S. McEachern's Sons, Wilmington.	Jan. 25, '13	100	1.50
6110	do.....	do.....	J. W. Brooks, Wilmington.	Jan. 27, '13	100	1.50
5972	do.....	Forsyth Roller Mills, Winston, N. C.	Farmers Union Agency Co., Winston.	Jan. 30, '13	100	-----
5771	do.....	South Side Roller Mills, Winston, N. C.	do.....	Jan. 30, '13	100	-----
5961	Ear Corn Meal.....	Asheville Milling Co., Asheville, N. C.	-----	-----	-----	-----

Seventeen official samples of corn and corn chops were analyzed. Eleven were above and six below guarantee in protein; nine above and eight below in fat; six above and eleven below* in fiber.

ANALYSES OF COTTON-SEED

Laboratory Number	Brand Name from Label	Manufacturer or Wholesaler	Retailer	Date of Collection	Claimed Weight of Package-Lbs.	Price
6405	Cotton-seed Meal.....	O. W. Clayton, Brevard, N. C.	-----	-----	-----	-----
6231	Cotton-seed Feed.....	Avery Oil and Fertilizer Co., Salisbury, N. C.	Overman and Co., Salisbury.	Feb. 7, '13	100	1.25
6218	Cotton-seed Feed, Cold Pressed Cake.	Mt. Gilead Cotton Oil Co., Mt. Gilead, N. C.	Parker & Clark, High Point.	Feb. 6, '13	100	1.50

*See footnote page on 16.

CORN, CORN CHOPS.

Laboratory Number	Guarantee, Per Cent			Analysis, Per Cent			Microscopic Analysis
	Protein	Fat	Fiber	Protein	Fat	Fiber	
6122	8.50	4.00	2.50	8.63+	4.27+	2.21—	Cracked Corn.
6098	8.50	4.00	2.50	8.44—	3.60—	1.88—	do.
6111	8.50	4.00	2.50	9.50+	5.02+	2.50	do.
6007	8.50	3.50	3.00	9.19+	4.05+	1.88—	do.
6022	8.50	4.00	3.50	9.38+	3.66—	1.81—	do.
6027	8.00	3.00	3.00	8.75+	4.44+	1.85—	do.
6106	10.03	5.05	2.03	8.14—	4.14—	1.92—	do.
6014	10.00	4.00	2.00	9.13—	4.24+	2.47+	do.
6025	8.00	3.00	4.00	8.50+	4.11+	2.23—	Cracked corn and small amount of corn cob (adulterant).
6026	8.00	3.00	4.00	8.63+	3.55+	1.67—	Cracked corn.
6056	8.75	8.53	1.99	8.88+	4.36—	2.16+	do.
6013	9.00	4.00	4.00	9.19+	3.42—	2.03—	do.
6024	9.00	4.00	4.00	8.75—	3.53—	1.74—	do.
6104	10.00	6.75	7.75	9.44—	6.16—	8.06+	Corn products.
6110	10.00	6.75	7.75	8.50—	5.57—	8.89+	do.
5972	9.87	3.91	1.97	8.94+	4.10+	2.56+	Corn Chops.
5971	9.00	3.50	4.00	9.06+	3.76+	2.20—	do.
5961	-----	-----	-----	10.00	4.95	5.71	

MEAL, COTTON-SEED FEED.

Laboratory Number	Guarantee, Per Cent			Analysis, Per Cent			Microscopic Analysis
	Protein	Fat	Fiber	Protein	Fat	Fiber	
				38.00			
6231	10.00	2.50	40.00	13.88+	3.09+	32.69—	Cotton-seed hulls and meal
6218	26.00	8.00	20.00	27.13+	5.20—	23.00+	do.

ANALYSES OF COTTON-SEED

Laboratory Number	Brand Name from Label	Manufacturer or Wholesaler	Retailer	Date of Collection	Claimed Weight of Package-Lbs.	Price
6129	Durham Brand Cotton-seed Feed.	Florida Cotton-seed Oil Co., Jacksonville, Fla.	W. B. Cooper & Co., Wilmington.	-----	100	1.75
6173	do.....	do.....	T. M. Benton, Winston	Feb. 4, '13	100	1.50
6166	do.....	do.....	Winston Grain Co., Winston-Salem.	Feb. 4, '13	100	1.40
6217	do.....	do.....	Parker & Clark, High Point.	Feb. 6, '13	100	1.75
6356	Cotton-seed Feed.....	Tennessee Fiber Co., Memphis, Tenn.	-----	-----	-----	-----
6124	Cream Brand Cotton-seed Feed.	Tennessee Fiber Co., Memphis, Tenn.	McNair & Pearsall, Wilmington.	Jan. 27, '13	100	1.65
6116	do.....	do.....	The Stone Co., Wilmington	Jan. 27, '13	100	1.65
6113	do.....	do.....	J. W. Brooks, Wilmington.	Jan. 27, '13	100	1.65
5973	Cotton-seed Feed.....	Avery Oil and Fertilizer Co., Salisbury, N. C.	Farmers' Union Agency Co., Winston.	Nov. 30, '12	100	0.75
5974	KO-Pres-KO.....	Universal Oil & Fertilizer Co., Winston, N. C.	Farmers' Union Agency Co., Winston.	Nov. 30, '12	100	-----
5953	do.....	do.....	-----	-----	-----	-----

Eleven cotton-seed feeds were analyzed. Ten were above and one below guarantee in protein; seven above and four below in fat; three above and eight below* in fiber.

ANALYSES OF RICE PRODUCTS,

Laboratory Number	Brand Name from Label	Manufacturer or Wholesaler	Retailer	Date of Collection	Claimed Weight of Package-Lbs.	Price
5989	Rice Meal.....	Carolina Rice Mills, Goldsboro, N. C.	H. Weil & Bros., Goldsboro	Dec. 15, '12	100	1.65
6107	do.....	do.....	Mt. Olive Grocery & Hardware Co., Mt. Olive.	Jan. 23, '13	100	2.00
5999	do.....	do.....	B. G. Thompson, Goldsboro.	Dec. 11, '12	100	1.50
5988	Rice Polish.....	do.....	H. Weil & Bros., Goldsboro	Dec. 11, '12	100	2.00
6084	Rice Meal.....	West Point Mill Co., Charleston, S. C.	The C. Woodard Co., Wilson.	Jan. 16, '13	200	3.80
6210	Pure Crushed Oats.....	Lewis & Acock, Knoxville, Tenn.	Parker & Clark, High Point.	Feb. 6, '13	100	2.00
6246	Buckwheat.....	T. H. Taylor, Valle Crucis, N. C.	-----	-----	-----	-----

Six official samples of the above products were analyzed. Five were above and one below guarantee in protein; four above and two below in fat; four above and two below* in fiber.

*See footnote on page 16.

MEAL, COTTON-SEED FEED—*Continued.*

Laboratory Number	Guarantee, Per Cent			Analysis, Per Cent			Microscopic Analysis
	Protein	Fat	Fiber	Protein	Fat	Fiber	
6129	25.00	6.00	20.00	24.38—	7.59+	17.07—	Cotton-seed hulls and meal.
6173	25.00	6.00	20.00	25.13+	6.40+	16.96—	do.
6166	25.00	6.00	20.00	25.13+	7.40+	17.64—	do.
6217	25.00	6.00	20.00	25.00	8.95+	17.10—	do.
6356	-----	-----	-----	21.00	4.29	23.60	do.
6124	20.00	5.00	22.00	21.50+	3.87—	20.87—	do.
6116	20.00	5.00	22.00	25.38+	5.39+	13.61—	do.
6113	20.00	5.00	22.00	22.94+	4.00—	20.11+	do.
5973	10.06	2.50	40.00	10.88+	3.92+	35.86—	do.
5974	23.00	8.00	17.00	24.38+	7.86—	20.11+	Cold pressed cotton-seed cake.
-----	-----	-----	-----	21.75	8.47	21.43	

CRUSHED OATS, BUCKWHEAT.

Laboratory Number	Guarantee, Per Cent			Analysis, Per Cent			Microscopic Analysis
	Protein	Fat	Fiber	Protein	Fat	Fiber	
5989	12.00	9.00	11.50	12.13+	12.61+	11.55	Rice meal.
6107	12.00	9.00	8.00	13.00+	13.47+	9.97+	Rice product.
5993	12.00	9.00	8.00	12.50+	12.52+	8.92+	Rice meal.
5988	11.50	7.00	6.30	12.50+	10.67+	1.58—	Rice polish.
6084	10.00	10.00	10.00	10.44+	9.58—	7.64—	Rice product.
6210	11.80	5.00	9.50	11.75—	4.97—	9.57	Crushed oats.
-----	-----	-----	-----	9.00	2.53	13.00	

ANALYSES OF BEET PULP,

Laboratory Number	Brand Name from Label	Manufacturer or Wholesaler	Retailer	Date of Collection	Claimed Weight of Package-Lbs.	Price
6169	Dried Beet Pulp.....	Hottelett & Co., Milwaukee, Wis.	Farmers' Union Agency Winston.	Feb. 4, '13	100	1.60
6065	do.....	The Larowe Milling Co., Detroit, Mich.	W. S. White & Co., Elizabeth City.	Jan. 11, '13	100	1.50
6059	do.....	do.....	T. P. Nash, Elizabeth City	Jan. 11, '13	100	1.50
6020	do.....	Michigan Sugar Co., Bay City, Mich.	C. L. Spencer, New Bern	Dec. 14, '12	100	1.65
6105	do.....	do.....	John S. McEachern's Sons, Wilmington.	Jan. 25, '13	100	1.90
6193	do.....	Moon-Taylor Co., Lynchburg, Va.	Elmore-Maxwell Co., Greensboro.	Feb. 5, '13	100	1.75
6099	Buffalo Gluten Feed.....	Corn Products Refining Co., New York.	John S. McEachern's Sons, Wilmington.	Jan. 25, '13	100	1.85
5960	Feed.....	Alexis Milling Co., Alexis, N. C.				
6298	do.....	Adams Grain & Provision Co., Asheville, N. C.				
5932	Screenings.....	do.....				
6315	Feed.....	Monitor Milling Co., Claremont, N. C.				
6043	Mill Feed.....	North State Milling Co., Greensboro, N. C.				
6046	do.....	Statesville Flour Mill Co., Statesville, N. C.				
5979	do.....	do.....				
6299	Horse and Mule Feed.....	W. A. Watson & Co., Greensboro, N. C.				
6403	Dandy Feed No. 3.....	Warren Milling Co., Nashville, N. C.				
6407	Mixed Feed.....	do.....				
6203	Feed.....	Young & Anderson, Asheville, N. C.				
6446	do.....	Yoch Bros., Winston, N. C.				
6445	do.....	R. E. Zimmerman, Rural Hall, N. C.				
6409	Mixed Feed.....	J. B. Jones, Glen Anna Milling Co., Thomasville, N. C.				
5981	Bran and Meal.....	Hill & Young, Lexington, N. C.				

Six official samples of beet-pulps were analyzed. All were above guarantee in protein and fat; five above and one below* in fiber.

*See footnote no page 16.

GLUTEN FEED, MISCELLANEOUS.

Laboratory Number	Guarantee, Per Cent			Analysis, Per Cent			Microscopic Analysis
	Protein	Fat	Fiber	Protein	Fat	Fiber	
6169	8.00	0.50	20.00	9.50+	1.15+	19.35—	Dried beet pulp.
6065	8.00	0.50	20.00	8.50+	1.25+	18.81—	do.
6059	8.00	0.50	20.00	7.63—	1.36+	18.55—	do.
6020	8.00	0.50	20.00	7.94—	1.30+	20.24+	do.
6105	8.00	0.50	20.00	8.13+	1.19+	19.01—	do.
6193	8.00	0.50	20.00	8.63+	1.25+	18.85—	do.
6099	23.00	2.00	8.00	26.44+	2.50+	6.10—	Gluten feed.
5960	-----	-----	-----	13.88	4.69	6.46	
6298	-----	-----	-----	10.50	2.71	7.93	
5982	-----	-----	-----	11.75	5.20	10.18	
6315	-----	-----	-----	13.38	3.96	5.45	
6043	-----	-----	-----	11.00	3.89	6.35	
6046	-----	-----	-----	13.94	5.28	6.67	
5979	-----	-----	-----	14.00	4.53	6.64	
6299	-----	-----	-----	10.13	4.24	6.70	
6408	-----	-----	-----	13.00	3.66	3.82	
6407	-----	-----	-----	12.25	3.47	2.51	
6208	-----	-----	-----	10.38	3.29	3.56	
6446	-----	-----	-----	14.75	3.67	4.62	
6445	-----	-----	-----	10.00	4.73	5.76	
6409	-----	-----	-----	11.50	3.45	3.47	
5981	-----	-----	-----	11.50	4.57	4.10	

ANALYSES OF MIXED

Laboratory Number	Brand Name from Label	Manufacturer or Wholesaler	Retailer	Date of Collection	Claimed Weight of Package-Lbs.	Price
6442	Mill Feed.....	Asheboro Roller Mills, Asheboro, N. C.	Asheboro Roller Mills.....	Apr. 22, '13	75	----
6229	Milco Feed.....	Asheville Milling Co., Asheville, N. C.	Overman & Co., Salisbury.	Feb. 7, '13	75	1.30
6100	Diamond Hog Feed.....	Corn Products Refining Co., New York.	John S. McEachern's Sons, Wilmington.	Jan. 25, '13	100	1.85
6147	Creamo Dairy Feed.....	Corno Mills Co., St. Louis, Mo.	Hall and Pearsall, Wilming- ton.	Feb. 5, '13	100	----
6047	Corno Horse Feed	do.....	F. V. Johnston, Greenville.	Jan. 8, '13	175	3.25
6230	Corno Horse and Mule Feed,	do.....	Overman & Co., Salisbury.	Feb. 7, '13	100	1.80
6197	do.....	do.....	The Patterson Co., Greens- boro.	Feb. 5, '13	100	1.80
6148	Mixed Feed.....	Douthat-Riddle Co., Dan- ville, Va.	The Armfield Co., Fayette- ville.	Feb. 6, '13	75	----
6177	Cremo Corn Chop.....	Huff & Cook, Roanoke, Va.	Farmers' Union Agency Co., Winston-Salem.	Feb. 4, '13	100	1.75
6212	Carolina Special Mixed Feed.	Lewis & Adcock, Knox- ville, Tenn.	Parker & Clark, High Point.	Feb. 6, '13	75	----
6243	Cow-Eat-a Mixed Feed	do.....	Thompson Grain and Feed Store, Salisbury.	Feb. 7, '13	100	1.80
6211	Fine Feed or Feed Meal...	Mountain City Mill Co., Chattanooga, Tenn.	Parker & Clark, High Point.	Feb. 6, '13	75	1.35
6102	Mixed Feed.....	John S. McEachern's Sons, Wilmington, N. C.	do.....	Feb. 25, '13	----	----
6214	do.....	New Port Mill Co., New Port, Tenn.	Parker & Clark, High Point.	Feb. 6, '13	75	1.35
6219	do.....	do.....	W. A. Davis, High Point...	Feb. 6, '13	75	1.35
6078	Schumacher Special Horse Feed.	The Quaker Oats Co., Chicago, Ill.	Geo. J. Hales & Bro., Rocky Mount.	Jan. 14, '13	100	1.75
6087	do.....	do.....	The C. Woodward Co., Wilson.	Jan. 16, '13	----	1.25
6195	do.....	do.....	The Patterson Co., Greens- boro.	Feb. 5, '13	100	1.85
6001	do.....	do.....	Bizzell and Thornton, Goldsboro.	Dec. 11, '12	100	2.00
6000	Schumacher Stock Feed.....	do.....	do.....	Dec. 11, '12	100	2.00
6205	do.....	do.....	Scott, Sparger & Co., Greensboro.	Feb. 5, '13	100	1.80
6093	Banner Feed.....	The Quaker Oats Co., Chi- cago, Ill.	Wells Grocery Co., Wilson.	Jan. 16, '13	100	1.40
6003	Cracker Mule Feed.....	do.....	Bizzell and Thornton, Goldsboro.	Dec. 11, '12	100	2.00
6016	Purina Feed.....	Ralston Purina Co., St. Louis, Mo.	C. L. Spencer, New Bern...	Dec. 14, '12	100	1.90
6242	do.....	do.....	Thompson Grain and Feed Store, Salisbury.	Feb. 7, '13	100	1.90
6053	Cracked Corn and Oats	S. D. Scott & Co., Inc., Norfolk, Va.	T. P. Nash, Elizabeth City	Jan. 11, '13	100	1.45
6018	Royal Feed.....	C. L. Spencer, New Bern, N. C.	C. L. Spencer, New Bern...	Dec. 14, '12	100	1.55
6140	Peerless Feed.....	J. Allen Smith, Knoxville, Tenn.	J. H. Culbreth & Co., Fayetteville.	Jan. 29, '13	100	1.60

FEEDS (not containing molasses.)

Laboratory Number	Guarantee, Per Cent			Analysis, Per Cent			Microscopic Analysis
	Protein	Fat	Fiber	Protein	Fat	Fiber	
6442	15.00	4.00	8.00	13.00—	4.11+	4.93—	
6229	14.00	3.00	7.00	11.38—	4.00+	3.89—	Wheat product, corn meal.
6100	18.00	8.00	13.00	18.13+	14.35+	12.51—	Ground corn, oil cake, ground bone.
6147	16.50	4.50	18.00	16.13—	4.67+	18.71+	Alfalfa meal, cotton-seed meal, corn and oat product, oat hulls.
6047	10.00	3.05	12.00	11.13+	4.46+	12.44+	Cracked corn, alfalfa meal, oat product.
6230	10.00	3.50	12.00	11.25+	3.67+	12.54+	Cracked corn, oat product, cotton-seed meal.
6197	10.00	3.50	12.00	10.50+	3.81+	12.98+	Cracked corn, alfalfa meal, cotton-seed meal, oat meal, mill by-product.
6148	10.40	4.30	10.00	10.25—	3.76—	11.17+	Wheat product, corn-cob meal.
6177	18.00	4.50	4.30	16.00—	4.29—	4.57+	Corn meal, cotton-seed meal, gluten feed.
6212	10.00	4.00	10.00	10.25+	4.72+	4.02—	Wheat and corn product.
6243	20.00	4.00	10.00	20.50+	5.31+	13.91+	Alfalfa and cotton-seed meal, wheat bran, corn product.
6211	12.50	5.50	8.50	12.13—	5.63+	4.38—	Wheat and corn product.
6102	-----	-----	-----	11.63	4.50	8.69	
6214	13.50	4.00	8.00	14.63+	5.80+	6.10—	Wheat and corn product.
6219	13.50	4.00	8.00	14.63+	6.44+	6.62—	do.
6078	10.00	4.00	8.00	9.63—	4.03+	7.45—	Partially ground corn, oats, cotton-seed meal, oat meal, mill by-products.
6087	10.00	4.00	8.00	10.00	5.09+	6.46—	Corn, oats, cotton-seed meal, oatmeal, mill by-products.
6195	10.00	4.00	8.00	10.25+	3.95—	7.19—	do.
6001	10.00	4.00	8.00	9.94—	4.18+	7.75—	do.
6000	10.00	3.25	9.00	10.94+	5.08+	11.34+	Oat product, oat hulls, oat middling, cotton-seed meal, barley.
6205	10.00	3.25	9.00	10.75+	4.57+	10.35+	do.
6093	10.00	4.00	9.00	10.00	3.56—	8.82—	Corn, wheat products, cotton-seed meal, flax screenings, oat meal, mill by-products.
6003	10.00	3.50	12.00	11.38+	3.77+	11.49—	Alfalfa and cotton-seed meal, oats, barley, flax screenings, oat by-product.
6016	12.50	4.00	9.80	14.25+	3.99—	10.72+	Oats, cracked corn, corn meal, brewers grains, alfalfa meal.
6242	12.50	4.00	9.80	13.50+	4.15+	10.80+	do.
6053	8.00	4.00	2.00	9.45+	4.76+	4.67+	Cracked corn, rolled oats.
6018	10.00	6.00	10.44	11.36+	6.97+	9.37—	Ground corn, wheat bran, oats, cotton-seed meal.
6140	15.00	4.00	7.00	15.25+	4.15+	7.02	Wheat and corn product.

ANALYSES OF MIXED

Laboratory Number	Brand Name from Label	Manufacturer or Wholesaler	Retailer	Date of Collection	Claimed Weight of Package-Lbs.	Price
6436	Tip Top Feed.....	Trammell & Co., Inc., Norfolk, Va.	Littleton Feed & Grocery Co., Littleton.	Apr. 18, '13	100	-----
6416	W. J. T. Mash.....	W. J. Todd's Sons, Rich- mond, Va.	Adamson & Wolff, Char- lotte.	Apr. 22, '13	100	2.25

Twenty-nine official mixed feeds not containing molasses were analyzed. Twenty were above and nine below guarantee in protein; all above in fat; twelve above and seventeen below* in fiber.

ANALYSES OF MOLASSES

Laboratory Number	Brand Name from Label	Manufacturer or Wholesaler	Retailer	Date of Collection	Claimed Weight of Package-Lbs.	Pr.
6032	Sucrene Alfalfa Horse and Mule Feed.	American Milling Co., Chi- cago, Ill.	Job P. Wyatt Sons' Co., Raleigh.	Dec. 19, '12	100	-----
6031	do.....	do.....	do.....	Dec. 19, '12	100	-----
6019	Sucrene Horse and Mule Feed.	do.....	C. L. Spencer, New Bern...	Dec. 14, '12	100	1.70
5992	Sucrene Dairy Feed.....	do.....	B. C. Thompson, Golds- boro.	Dec. 11, '12	100	1.75
6030	do.....	do.....	Job P. Wyatt Sons' Co., Raleigh.	Dec. 12, '12	100	-----
6141	do.....	do.....	J. H. Culbreth & Co., Fay- etteville.	Jan. 29, '13	100	1.50
6126	Dexter Horse and Mule Feed.	Allneeda Mills Co., East St. Louis, Ill.	W. B. Cooper & Co., Wil- mington.	-----	100	1.50
6039	Crystalloid Dairy Feed...	Jonas F. Eby & Son, Lan- caster, Pa.	W. A. Myatt, Raleigh.....	Dec. 19, '12	100	-----
6139	International Horse Feed.	International Sugar Feed Co., No. 2, Memphis, Tenn.	Adams Grain & Provision Co., Fayetteville.	Jan. 29, '13	100	1.75
5997	International Horse and Mule Feed.	do.....	M. J. Best & Sons, Golds- boro.	Dec. 11, '12	100	1.50
5984	do.....	do.....	W. C. Moye & Son, Golds- boro.	Dec. 11, '12	100	2.00
6138	International Cow Feed	do.....	Adams Grain & Provision Co., Fayetteville.	Jan. 20, '13	100	1.75
6179	Dan Patch Special Feed	do.....	Farmers' Union Agency Co., Winston.	Feb. 4, '13	100	1.75
6071	Badger Alfalfa Horse and Mule Feed.	Chas. A. Krause Milling Co., Milwaukee, Wis.	Mathews Weeks & Co., Rocky-Mount.	Jan. 14, '13	100	1.70
6028	do.....	do.....	F. G. Paul & Co., Washing- ton.	Dec. 16, '12	100	1.75
6021	Meadow Dairy Feed.....	Kingfalfa Mills, Nebraska City, Neb.	C. B. Hill, New Bern.....	Dec. 14, '12	100	1.80
6174	Kornfalfa Kandy Feed	Kornfalfa Feed Milling Co., Kansas City, Mo.	T. M. Benton, Winston	Feb. 4, '13	100	1.75

*See footnote on page 16.

FEEDS (not containing molasses).—Continued.

Laboratory Number	Guarantee, Per Cent			Analysis, Per Cent			Microscopic Analysis
	Protein	Fat	Fiber	Protein	Fat	Fiber	
6436	10.00	4.00	9.00	13.50+	3.76—	2.75—	
6416	20.00	3.50	10.00	18.75—	5.64+	8.78—	

FEEDS (mixtures containing molasses).

Laboratory Number	Guarantee, Per Cent			Analysis, Per Cent			Microscopic Analysis
	Protein	Fat	Fiber	Protein	Fat	Fiber	
6032	11.00	2.50	12.00	10.19—	3.10+	12.90+	Oats, cracked corn, alfalfa meal, barley, ground screenings, cotton-seed meal, molasses.
6031	10.00	2.50	12.00	10.38+	3.46+	6.84—	Oats, cracked corn, cotton-seed meal, ground screenings, molasses.
6019	10.00	3.50	12.00	13.31+	3.14—	5.57—	Cracked corn, ground screenings, molasses.
5992	16.50	3.50	12.00	17.63+	6.40+	10.73—	Ground screenings, oat clippings, cotton-seed meal, gluten feed, molasses.
6030	16.50	3.50	12.00	15.38—	5.51+	11.15—	do.
6141	16.50	3.50	12.00	15.50—	4.55+	13.05+	do.
6126	11.90	3.27	11.70	12.25+	2.07—	10.67—	Alfalfa meal, oats, cracked corn, molasses.
6039	16.50	3.50	12.00	17.13+	6.29+	10.70—	Ground, screenings small amount of cotton-seed meal, oat clippings, molasses.
6139	12.50	3.50	12.00	10.75—	3.40—	10.42+	Screenings, alfalfa meal, cracked corn, oat clippings, cotton-seed meal, molasses.
5997	12.50	3.50	12.00	12.00—	3.46—	12.92+	do.
5984	12.50	3.50	12.00	12.88+	4.07+	10.27+	do.
6138	16.50	3.50	12.00	18.13+	3.60+	12.41+	do.
6179	10.00	3.00	12.00	12.13+	2.97—	10.78+	Alfalfa meal, oats, cracked corn, molasses.
6071	10.00	2.00	12.00	11.06+	3.13+	8.62—	do.
6028	10.00	2.00	12.00	11.88+	2.26+	10.30+	do.
6021	13.00	2.00	18.00	14.50+	1.24—	18.26+	Alfalfa meal, molasses.
6174	9.00	2.50	12.00	10.00+	3.19+	11.93—	Alfalfa meal, oats, cracked corn, molasses.

ANALYSES OF MOLASSES

Laboratory Number	Brand Name from Label	Manufacturer or Wholesaler	Retailer	Date of Collection	Claimed Weight of Package-Lbs.	Price
5970	Kornfalfa Kandy Feed	Kornfalfa Feed Milling Co., Kansas City, Mo.	Jones & Hedgecock, Winston.	Nov. 30, '12	100	-----
6146	Nutrine Stock Feed	Nutrine Milling Co., Crainly, La.	McNair & Pearsall, Wilmington.	Feb. 2, '13	100	1.65
6011	Suga-Ration Stock Feed	G. E. Patterson & Co., Memphis, Tenn.	Burns & Co., New Bern	Dec. 14, '12	100	1.75
6153	do	do	Jones & Hedgecock, Winston.	Feb. 4, '13	100	2.00
6012	Katl-Eat-Dairy Feed	J. E. Patterson & Co., Memphis, Tenn.	Burrus & Co., New Bern	Dec. 14, '12	-----	1.70
6167	Peerless Alfalmo Horse Feed	Omaha Alfalfa Milling Co., Omaha, Neb.	Winston Grain Co., Winston-Salem.	Feb. 4, '13	100	1.65
6157	Perfection Horse Feed	do	W. H. Turner, Winston-Salem.	Feb. 4, '13	100	1.65
6165	Arab Horse Feed	M. C. Peters Mill Co., Omaha, Neb.	do	Feb. 4, '13	100	1.80
6241	do	do	Thompson Grain & Feed Store, Salisbury	Feb. 7, '13	100	1.85
6235	do	do	Overman & Co., Salisbury.	Feb. 7, '13	100	1.90
6004	Green Cross Horse Feed	The Quaker Oats Co., Chicago, Ill.	Bizzell & Thornton, Goldsboro.	Dec. 11, '12	100	2.00
6198	do	do	The Patterson Co., Greensboro.	Feb. 5, '13	100	1.80
6079	do	do	Geo. J. Hales & Bro., Rocky Mount.	Jan. 14, '13	100	1.75
6049	Quaker Molasses Dairy Feed	do	F. V. Johnston, Greenville.	Jan. 8, '13	100	1.75
6017	Purina Molasses Feed	Ralston Purina Co., St. Louis, Mo.	C. L. Spencer, New Bern	Dec. 14, '12	100	1.70
6220	do	do	W. A. Davis, High Point	Feb. 6, '13	100	2.00
6240	do	do	Thompson Grain & Feed Store, Salisbury.	Feb. 7, '13	100	1.85
6163	do	do	Winston Grain Co., Winston-Salem.	Feb. 4, '13	100	1.80

Thirty-five official analyses of molasses feeds were analyzed. Twenty-nine were above and six below guarantee in protein; twenty-three above and twelve below in fat; twelve above and twenty-three below* in fiber.

*See footnote on page 16.

FEEDS (mixtures containing molasses).—*Continued.*

Laboratory Number	Guarantee, Per Cent			Analysis, Per Cent			Microscopic Analysis
	Protein	Fat	Fiber	Protein	Fat	Fiber	
5970	9.00	2.50	12.00	9.00	3.64+	9.22—	Alfalfa meal, oats, cracked corn, molasses.
6146	10.00	3.50	12.00	11.50+	7.25+	8.26—	Cracked corn, rice bran, cotton-seed meal, ground hay, molasses.
6011	11.65	3.00	11.40	12.38+	2.92—	11.43+	Cracked corn, oats, alfalfa and cotton-seed meals, molasses.
6153	11.65	3.00	11.04	11.19—	2.88+	10.00—	do.
6012	15.00	3.50	12.00	15.25+	3.64+	8.39—	Alfalfa meal, rice straw, cotton-seed meal, cracked corn, oats, molasses.
6167	10.50	2.00	12.00	12.88+	2.53+	10.90—	Oats, cracked corn, alfalfa meal, molasses.
6157	10.50	2.00	12.00	13.00+	2.37+	11.60—	do.
6165	10.00	2.00	15.00	10.63+	1.95—	10.82—	do.
6241	10.00	2.00	15.00	10.88+	2.40+	9.32—	do.
6235	10.00	2.00	15.00	11.63+	2.45+	8.48—	do.
6004	10.00	3.25	10.50	10.50+	3.64+	8.87—	Oats, cracked corn, alfalfa meal, oat by-product, cotton-seed meal, molasses.
6198	10.00	3.25	10.00	11.00+	3.11—	10.65+	do.
6079	10.00	3.25	9.00	10.00	3.64+	8.70—	do.
6049	16.00	4.00	14.00	16.00	3.29—	17.10+	Screenings, cotton-seed meal, malt sprouts, oat clippings, molasses.
6017	10.00	2.50	12.00	12.88+	2.23—	10.02	Oats, cracked corn, alfalfa meal, molasses.
6220	9.00	1.50	12.00	11.75+	3.24+	10.52—	do.
6240	9.00	1.50	12.00	10.75+	3.04+	8.40—	do.
6163	10.00	2.50	12.00	11.50+	2.29—	11.05—	do.

ANALYSES OF

Laboratory Number	Brand Name from Label	Manufacturer or Wholesaler	Retailer	Date of Collection	Claimed Weight of Package-Lbs.	Price
6061	Buff Chick Feed.....	John J. Buffington & Co., Baltimore, Md.	W. S. White & Co., Eliza- beth City.	Jan. 11, '13	-----	-----
6092	Cypher's Chick Food.....	Cypher's Incubator Co., Buffalo, N. Y.	Wells Grocery Co., Wilson	Jan. 16, '13	100	-----
6037	Cypher's Laying Mash.....	do.....	Job P. Wyatt's Sons Co., Raleigh.	Dec. 19, '12	100	-----
6036	Cypher's Developing Food.....	do.....	do.....	Dec. 19, '12	100	-----
6035	Cypher's Scratching Food.....	do.....	do.....	Dec. 19, '12	-----	-----
6449	Carolina Mash Feed.....	Carolina Poultry Supply Co., Sardis, N. C.	-----	-----	-----	-----
6447	Carolina Scratch Feed.....	do.....	-----	-----	-----	-----
6448	Carolina Chick Feed.....	do.....	-----	-----	-----	-----
6076	Corno Hen Feed.....	The Corno Mills Co., St. Louis, Mo.	G. S. Edwards, Rocky Mt.	Jan. 14, '13	100	2.25
6121	do.....	do.....	F. E. Hashegan Co., Wil- mington.	Jan. 27, '13	100	2.25
6199	do.....	do.....	The Patterson Co., Greens- boro.	Feb. 5, '13	100	2.25
6050	do.....	do.....	F. V. Johnston, Greenville	Jan. 8, '13	100	2.25
6058	Dixie Hen Feed.....	Dabney Brokerage Co., Newport News, Va.	T. P. Nash, Elizabeth City	Jan. 8, '13	100	2.50
6101	Globe Scratch Feed.....	The Albert Dickenson Co., Chicago, Ill.	John S. McEachern's Sons, Wilmington.	Jan. 25, '13	100	2.50
6176	White Cross Scratch Feed.....	do.....	T. M. Benton, Winston	Feb. 4, '13	100	2.25
6156	Pine Tree Scratch Feed.....	do.....	Elmore Maxwell Co., Greensboro.	Feb. 5, '13	100	2.15
5956	Hencackle Laying Food.....	H. W. Hargis, Raleigh, N. C.	-----	-----	-----	-----
5957	Aunt Patsy's Poultry Feed.....	do.....	-----	-----	-----	-----
6225	Tuxedo Scratch Feed.....	The Easly and Daniel Co., Cincinnati, O.	Stout Produce Co., High Point.	Feb. 6, '13	100	2.00
6215	Eadam Scratch Feed.....	do.....	Parker & Clark, High Point.	Feb. 6, '13	100	2.00
6248	Red Feather Hen Feed.....	Lewis and Adeock, Knox- ville, Tenn.	J. W. Cline, Concord.....	Feb. 12, '13	100	2.35
6355	Chicken Feed.....	Morris & Sheppard, Alex- ander, N. C.	-----	-----	-----	-----
6048	Aunt Patsy's Poultry Feed.....	Aunt Patsy Poultry Feed Co., Memphis, Tenn.	F. V. Johnston, Greenville	Jan. 8, '13	100	2.25
6077	Daisy Hen Feed.....	The Quaker Oats Co., Chi- cago, Ill.	Geo. S. Edwards & Co., Rocky Mount.	Jan. 14, '13	100	2.25
6227	do.....	do.....	Robert Brockwell & Son, High Point.	Feb. 6, '13	100	2.25
6187	Chicken Feed.....	Robinson-Danforth Corn Co., St. Louis, Mo.	Elmore Maxwell Co., Greensboro.	Feb. 5, '13	100	2.20
6223	do.....	do.....	W. A. Davis, High Point.	Feb. 6, '13	100	2.25
6038	Chicken Feed.....	Ralston Purina Co., St. Louis, Mo.	The C. Woodard Co., Wil- son.	Jan. 16, '13	100	2.25
6160	do.....	do.....	Winston Grain Co., Wins- ton.	Feb. 4, '13	100	2.00
6188	do.....	do.....	Elmore Maxwell Co., Greensboro.	Feb. 5, '13	100	2.25

POULTRY FEEDS.

Laboratory Number	Guarantee, Per Cent			Analysis, Per Cent			Microscopic Analysis
	Protein	Fat	Fiber	Protein	Fat	Fiber	
6061	10.00	2.50	5.00	10.00	3.04+	2.00—	Ground corn, Kaffir corn, wheat, hulled oats, millet-seed, limestone.
6092	10.00	3.00	3.02	10.38+	2.98—	1.77—	do.
6037	15.00	3.00	6.00	12.75—	2.54—	3.41—	Ground Kaffir corn, wheat bran, middlings, corn and blood meals.
6036	10.00	3.00	3.20	10.88+	3.47+	2.17—	Wheat, Kaffir corn, oats, buckwheat, cracked corn.
6035	10.00	3.00	3.20	10.50+	3.52+	2.48—	Wheat, Kaffir corn, oats, buckwheat, cracked corn, sunflower seed.
6449	-----	-----	-----	14.00	4.38	6.72	
6447	-----	-----	-----	10.38	3.81	2.72	
6448	-----	-----	-----	8.75	3.00	3.35	
6076	10.00	3.50	5.00	10.44+	3.24—	2.23—	Wheat, Kaffir corn, sunflower seed, cracked corn.
6121	10.00	3.50	5.00	10.81+	3.48—	3.22—	do.
6199	10.00	3.50	5.00	10.13+	3.77+	2.66—	do.
6050	10.00	3.50	5.00	10.38+	4.16+	2.54—	Wheat, Kaffir corn, sunflower-seed, cracked corn, oats.
6058	10.00	3.60	4.00	11.00+	3.43—	2.60—	Wheat, oats, Kaffir corn, sunflower-seed, buckwheat, cracked corn.
6101	10.00	2.50	5.00	11.00+	3.10+	2.50—	Wheat, oats, barley, Kaffir corn, buckwheat, sunflower seed, linseed meal.
6176	10.00	2.50	5.00	11.25+	4.06+	2.82—	Wheat, rye, barley, buckwheat, Kaffir corn, cracked corn, sunflower seed.
6186	10.00	2.50	5.00	11.13+	3.58+	2.36—	Wheat, Kaffir corn, barley, oats, buckwheat, sunflower seed, cracked corn, limestone.
5956	-----	-----	-----	21.63	5.01	10.44	
5957	-----	-----	-----	15.25	4.04	7.78	
6225	10.00	2.50	5.00	10.88+	3.28—	2.97—	Wheat, Kaffir corn, oats, barley, sunflower seed, cracked corn, limestone.
6215	10.00	2.50	5.00	10.75+	2.97—	2.86—	do.
6248	10.00	3.70	2.30	10.50+	5.17+	4.81+	Wheat, Kaffir corn, sunflower seed, cracked corn, weed seed.
6355	-----	-----	-----	10.00	3.64	2.67	
6048	15.00	4.50	7.28	16.19+	4.27—	7.35+	Wheat bran, middlings, oats, cracked corn, beef-meal, alfalfa meal.
6077	10.00	2.50	5.00	10.63+	5.03+	3.47—	Wheat, Kaffir corn, buckwheat, sunflower seed, oats, cracked corn.
6227	10.00	2.50	5.00	11.50+	3.72+	3.23—	do.
6187	10.00	3.00	6.00	11.00+	3.27+	2.65—	Wheat, Kaffir corn, barley, buckwheat, cracked corn, sunflower seed.
6223	10.00	3.00	6.00	9.75—	3.89+	3.08—	do.
6088	11.00	3.00	4.00	10.88—	4.08+	2.77—	Wheat, Kaffir corn, oats, barley, sunflower seed, cracked corn, weed seed.
6160	11.00	3.00	4.00	10.88—	4.21+	2.80—	Wheat, Kaffir corn, barley, sunflower seed, cracked corn, weed seed.
6188	11.00	3.00	4.00	11.00	3.60+	2.44—	do.

ANALYSES OF

Laboratory Number	Brand Name from Label	Manufacturer or Wholesaler	Retailer	Date of Collection	Claimed Weight of Package-Lbs.	Price
6244	Chicken Feed.....	Ralston Purina Co., St. Louis, Mo.	Thompson Grain & Feed Store, Salisbury.	Feb. 7, '13	100	2.10
6060	Chicken Chowder.....	do.....	W. S. White & Co., Eliza- beth City.	Feb. 11, '13	100	2.50
6234	Blue Hen Chicken Feed..	Statesville Flour Mill Co., Statesville, N. C.	Peeler Grain Co., Salisbury	Feb. 7, '13	100	2.15
6083	Monogram Scratch Feed..	E. A. Saunders' Sons Co., Richmond, Va.	Wilson Wholesale Co., Wilson.	Feb. 16, '13	100	2.25
6159	Turners Scratch Feed.....	W. H. Turner, Winston- Salem, N. C.	W. H. Turner, Winston- Salem.	Feb. 4, '13	100	1.90

Twenty-nine official samples of poultry feed were analyzed. Twenty-two were above, three equal to and 3 below guarantee in protein. Twenty-one were above and eight below guarantee in fat. Twenty were below* and three above guarantee in fiber.

*See footnote on page 16.

POULTRY FEEDS—*Continued.*

Laboratory Number	Guarantee, Per Cent			Analysis, Per Cent			Microscopic Analysis
	Protein	Fat	Fiber	Protein	Fat	Fiber	
6244	11.00	3.00	4.00	10.75+	3.90+	2.56—	Wheat, Kaffir corn, barley, sunflower seed, cracked corn, weed seed.
6060	17.00	3.00	9.00	17.50+	4.45+	6.82—	Wheat bran, middlings, corn meal, alfalfa meal, linseed meal, meat meal, charcoal.
6234	10.00	3.00	2.00	10.13+	3.60+	2.21+	Wheat, Kaffir corn, cracked corn.
6083	10.00	3.25	4.50	11.38+	3.14—	2.05—	Wheat, Kaffir corn, buckwheat, cracked corn.
6159	10.00	3.50	4.00	10.00	3.57+	3.02—	Wheat, oats, Kaffir corn, sunflower seed, cracked corn, weed seed.

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FOURTEENTH ANNUAL REPORT
ON
FOOD ADULTERATION
UNDER THE PURE FOOD LAW

PUBLISHED MONTHLY AND SENT FREE TO CITIZENS ON APPLICATION.

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*Assigned by the Bureau of Soils, United States Department of Agriculture.

†Assigned by the Bureau of Animal Industry, United States Department of Agriculture.

‡Assigned by the Bureau of Plant Industry, United States Department of Agriculture.

LETTER OF TRANSMITTAL.

HON. W. A. GRAHAM,

November 1, 1913.

*Commissioner of Agriculture,
Raleigh, N. C.*

SIR:—I submit herewith manuscript covering the investigations that have been made during the past year under the State Food Law, Chapter 368, Laws of 1907. I recommend its publication as the December BULLETIN and Fourteenth Annual Food Report.

Respectfully submitted,

W. M. ALLEN,
State Food Chemist.

Approved:

W. A. GRAHAM,
Commissioner of Agriculture.

REPORT ON FOOD ADULTERATION FOR 1913.

By W. M. ALLEN, STATE FOOD CHEMIST,

ASSISTED BY

E. W. THORNTON, ASSISTANT CHEMIST,

C. E. BELL, ASSISTANT CHEMIST.

Report on Food Adulteration and the Enforcement of Food Law for 1913—the fourteenth annual report on the subject.

STANDARDS AND REGULATIONS.

NOTES ON.

The Food Law provides that the Board of Agriculture shall adopt and publish standards of strength and purity and regulations for the enforcement of the law. Standards and regulations have been adopted and published in the Food Reports from time to time, and copies in pamphlet form will be sent on application.

Dealers are cautioned to make themselves familiar with the law, the standards and regulations under the Food Law, for they must be enforced. As the dealers have had time and opportunity to know the law, etc., it will be the policy of the Department to prosecute cases where similar ones have been dismissed because of the lack of information in regard to the law.

EXTRACT FROM FOOD LAW.

NOTE ON.

The following extract from the Pure Food Law is very important and the same is herewith printed in order that the grocerymen may become more familiar with the requirements of the law.

State Food Law, section 6, defines and describes what constitutes food adulteration. Section 7 defines and describes what constitutes the misbranding of food products. Section 9 provides for a guaranty by which the retail dealer may be exempt from prosecution for violation of the law.

EXTRACT FROM FOOD LAW.

SEC. 6. That for the purpose of this act an article shall be deemed to be adulterated, in the case of food—

First. If any substance has been mixed or packed with it, so as to reduce or lower or injuriously affect its quality or strength.

Second. If any substance has been substituted, wholly or in part, for the article.

Third. If any valuable constituent of the article has been wholly or in part abstracted.

Fourth. If it be mixed, colored, powdered, coated, or stained in a manner whereby damage or inferiority is concealed.

Fifth. If it contains any added poisonous or other added deleterious ingredient which may render such article injurious to health. If it contains any of the following substances, which are hereby declared deleterious and dan-

gerous to health when added to human food, to wit: Colors which contain antimony, arsenic, barium, lead, cadmium, chromium, copper, mercury, uranium, or zinc; or the following colors: gamboge, corallin, picric acid, aniline, or any of the coal-tar dyes; saccharine, dulcin, glucin, or any other artificially or synthetically prepared substitute for sugar; paraffin, formaldehyde, beta-naphthol, abrastol, benzoic acid or benzoates, salicylic acid or salicylates, boric acid or borates, sulphurous acid or sulphites, hydrofluoric acid or any fluorine compounds, sulphuric acid or potassium sulphate or wood alcohol: *Provided*, that catsups and condimental sauces may, when the fact is plainly and legibly stated in the English language on the wrapper and label of the package in which it is retailed, contain not to exceed two-tenths of one per cent of benzoic acid or its equivalent in sodium benzoate. Fermented liquors may contain not to exceed two-tenths of one per cent of combined sulphuric acid, and not to exceed eight-thousandths of one per cent of sulphurous acid.

Sixth. If it consists in whole or in part of a filthy, decomposed, or putrid animal or vegetable substance, or any portion of an animal unfit for food, whether manufactured or not, or if it is the product of a diseased animal or one that had died otherwise than by slaughter. In addition to the ways already provided, sausage shall be deemed to be adulterated if it is composed in any part of liver, lungs, kidneys, or other viscera of animals: *Provided*, that the use of animal intestines as sausage casings shall not be deemed to be an adulteration.

Seventh. If it differs in strength, quality, or purity from the standards of purity of food products that have been or may be from time to time adopted by the Board of Agriculture.

SEC. 7. That the term "misbranded," as used herein, shall apply to all drugs or articles of food, or articles which enter into the composition of food, the package or label of which shall bear any statement, design, or device regarding such article or the ingredients or substances contained therein which shall be false or misleading in any particular, and to any food or drug product which is falsely branded as to the State, Territory, or country in which it is manufactured or produced.

That for the purpose of this act an article shall also be deemed to be misbranded, in the case of food—

First. If it be an imitation of or offered for sale under the distinctive name of another article.

Second. If it be labeled or branded so as to deceive or mislead the purchaser, or purport to be a foreign product when not so, or if the contents of the package as originally put up shall have been removed, in whole or in part, and other contents shall have been placed in such package, or if it fail to bear a statement on the label of the quantity or proportion of any morphine, opium, cocaine, heroin, alpha or beta eucaine, chloroform, cannabis indica, chloral hydrate or acetanilide, or any derivative or preparation of any such substances contained therein.

Third. If in package form, and the contents are stated in terms of weight or measure, they are not plainly and correctly stated on the outside of the package.

Fourth. If the package containing it or its label shall bear any statement, design, or device regarding the ingredients or the substances contained therein, which statement, design, or device shall be false or misleading in any particular: *Provided*, that an article of food which does not contain any added poisonous or deleterious ingredients shall not be deemed to be adulterated or misbranded in the following cases:

First. In the case of mixtures or compounds which may be now or from time to time hereafter known as articles of food under their own distinctive names, and not an imitation of or offered for sale under the distinctive name of another article, if the name be accompanied on the same label or brand with a statement of the place where said article has been manufactured or produced.

Second. In the case of articles labeled, branded, or tagged so as to plainly indicate that they are compounds, imitations, or blends, and the word "compound," "imitation," or "blend," as the case may be, is plainly stated on the

package in which it is offered for sale: *Provided*, the labeling is according to the rules prescribed by the Board of Agriculture: *Provided*, that the term "blend," as used herein, shall be construed to mean a mixture of like substances, not excluding harmless coloring or flavoring ingredients used for the purpose of coloring and flavoring only.

SEC. 9. That no dealer shall be prosecuted under the provisions of this act when he can establish a guaranty signed by the wholesaler, jobber, manufacturer, or other party, residing in North Carolina, from whom he purchased such article, to the effect that the same is not adulterated or misbranded within the meaning of this act, designating it.

LABELING FOOD PRODUCTS.

RULES OF THE STATE BOARD OF AGRICULTURE UNDER FOOD LAW.

A label must be, as far as possible, attached to each package, and contain, in addition to other information, the name of the material, the name and address of the manufacturer, importer, or jobber. When the words "artificial," "imitation," "compound," "adulterated," or other words of similar import, are required, they must be on the principal label and immediately precede or follow the word or words they modify, which must be the principal word or words of the label, and be in at least half the size and same style of type and on the same kind of background as the word or words with which they are closely associated. The principal words in the label must be printed in either dark-colored letters on a light-colored background or light-colored letters on a dark-colored background. Any statement that is required on the principal label of a barrel or cask of molasses, molasses compound, sirup or compound sirup, vinegar or compound vinegar, must appear on one end or head of the barrel or cask; and if the principal label or any part of it appears on both ends of barrel or cask, they shall be identical, one to the other.

The label on bottled soft drinks must bear the name and address of the bottler.

Where the presence of preservatives, coloring matter, or other substance or substances is required to be printed on the label, the printing must be done clearly and conspicuously on the label, in type not smaller than *brevier heavy gothic caps*, and on the same kind of background as the rest of the label.

Retail dealers, while offering food or beverage for sale, must keep the label so that it may be seen by purchaser or inspector, and the label must be kept so that it will remain legible.

NOTICE TO DEALERS AND MANUFACTURERS.

VINEGAR.

Vinegar, under both the State and National Food Laws, is a product of standard strength made from the juice of apples—that is vinegar, and can be sold as vinegar, and nothing else is vinegar, and nothing else can be sold simply as vinegar. There are other products used as vinegar that are good, and can be legally sold under their own names,

as malt vinegar, wine or grape vinegar, sugar or sirup vinegar, spirit vinegar, and compound vinegar, the latter being a mixture of vinegar and one or more of the others.

It seems to be the custom among dealers that when a customer calls for vinegar, to furnish him with compound vinegar or any one of these substitutes for vinegar that the dealer happens to have. The sale of any of these substitutes for vinegar as vinegar, without making the character of the product known to the purchaser, is a violation of the law, and will have to be prosecuted by the Department.

SIRUPS AND MOLASSES.

Sirup, under both the State and National Food Laws, is a product made by evaporating the juice of a sugar-producing plant without removing any of the sugar. A product so made is sirup and can be sold as sirup; no other product is sirup, and no other product can be legally sold simply as sirup.

Glucose or corn sirup is made from starch, and not from the juice of a plant, and is, therefore, not a true sirup, and cannot be sold simply as sirup. It can be sold as glucose sirup, or corn sirup, but not as sirup, for, as said above, it is not a true sirup. It does not contain the sugar of a true sirup, and the sale of it as sirup is a violation of the law.

When corn sirup is mixed with sirup, refiner's sirup, or molasses, it forms a compound corn sirup, and must be sold as a compound or the sale will be a violation of the law.

Dealers are cautioned that the sale of refiner's sirup, or glucose or corn sirup, or any other substitute or compound sirup as sirup, will have to be prosecuted as a violation of the law.

Molasses is not sirup and sirup is not molasses, and dealers are cautioned that the sale of molasses as sirup, or the sale of sirup as molasses, is a violation of the law.

CANNED VEGETABLES COLORED WITH COPPER SALTS.

The question of whether the greening of vegetables for human food with copper salts constitutes a violation of the National Food Law was referred by the Secretary of Agriculture to the Referee Board of Consulting Scientific Experts. After an exhaustive investigation of the subject, the Referee Board reports to the Secretary, in part, as follows:

"It appears from our investigations, that in certain directions, even such small quantities of copper may have a deleterious action and must be considered injurious to health."

As the use in food of an ingredient which may render the latter injurious to health is a violation of the State Food Law, and as the Referee Board has said that small quantities of copper in food must be considered injurious to health, this Department will in the future consider the sale in North Carolina of vegetables colored with copper salts a violation of the State Food Law.

LARD.

Lard is the rendered fresh fat from hogs in good health at the time of slaughter, is clean, and free from rancidity.

It seems to be a custom among dealers of the State that when a customer calls for lard to furnish him with lard or compound lard, as it suits the dealer's convenience.

Compound lard composed of cotton-seed oil and clean, nonrancid stearin is a good food product, but it is not lard, and the sale of it as lard is a violation of the law.

CHEESE.

Cheese is a sound, solid, and ripened product made from milk or cream, and contains, in the water-free substance, not less than 50 per cent of milk fat.

Skim-milk cheese is a sound, solid, and ripened product, made from skim-milk.

It seems to be the custom of dealers to sell at retail skim-milk cheese as cheese. The sale of skim-milk cheese or a product containing less than the required amount of milk fat as cheese is a violation of the law. Such sale is a fraud, and if detected will be prosecuted under the Food Law.

WORK OF THE YEAR 1913.

During the year, 1,402 samples of foods and beverages have been analyzed.

SUMMARY OF RESULTS OF THE EXAMINATION OF FOOD PRODUCTS.

Name of Sample	Total Number of Samples Examined.	Number of Samples Adulterated, Misbranded or Misrepresented.	Per Cent of Samples, Sale Legal.	Per Cent of Samples, Sale Illegal.
Beans, canned.....	6			
Beers and imitation beers*.....	40			
Butter and butter substitutes.....	65	3	95.39	4.61
Chemical fruit preservatives.....	4			
Cheeses and cheese substitutes.....	64	20	68.75	31.25
Cider and imitation cider.....	22			
Coffee and coffee substitutes.....	94	13	86.17	13.83
Flour.....	101			
Honey.....	18	7	61.12	38.88
Ice-cream and ice-cream substitutes.....	10	8	20.00	80.00
Lard and lard substitutes.....	43	24	44.19	55.81
Lemon extracts and lemon extract substitutes.....	81	20	75.31	24.69
Maple sirup and maple sirup substitutes.....	18	6	66.66	33.34
Meal, corn.....	88			
Milk and cream.....	6			
Miscellaneous samples.....	10			
Molasses and sirups.....	232	62	73.28	26.72
Orange extracts.....	4	3	25.00	75.00
Peas, canned.....	39	23	41.03	58.97
Rice.....	12	1	91.67	8.33
Sweet oil and sweet oil substitutes.....	58	20	65.52	34.48
Vanilla extract and vanilla extract substitutes.....	93	19	79.57	20.43
Vinegar and vinegar substitutes.....	294	161	45.24	54.76
Total.....	1,402			

*Examined for alcohol only.

CANNED BEANS.

The State Food Law provides that a food product shall be deemed to be adulterated: if it be mixed, colored, powdered, coated, or stained in a manner whereby damage or inferiority is concealed, or if it contains any added poisonous or other added deleterious ingredient which may render such article injurious to health. It is and has been quite a practice among packers to green or artificially color canned vegetables with copper salts.

The question of whether the greening of vegetables for human food with copper salts constitutes a violation of the National Food Law was referred by the Secretary of Agriculture to the Referee Board of Consulting Scientific Experts in March of 1909. After an exhaustive investigation of the subject the Referee Board reports to the Secretary as follows:

"Copper salts used in the greening of vegetables may have the effect of concealing inferiority, inasmuch as the bright green color imparted to the vegetable simulates a state of freshness they may not have possessed before treatment.

"It appears from our investigation that, in certain directions, even such small quantities of copper may have a deleterious action, and must be considered injurious to health."

As the use in food of an ingredient which may render the latter injurious to health is a violation of the State Food Law, and as the Referee Board of Scientific Experts have said in their report that even small quantities of copper salts may have a deleterious action and must be considered injurious to health, this Department considers the sale in North Carolina of vegetables colored with copper salts a violation of the State Food Law, and such violations will in the future, if detected, be prosecuted.

Six samples were examined, 4 of which were adulterated or misbranded; 3 of the 4 containing copper sulphate, and 1, branded beans with pork and sauce, contained no pork.

RESULTS OF EXAMINATION

Laboratory Number.	Material and Brand from Label.	Manufacturer or Wholesaler.	Retail Dealer or Party Who Sent Sample for Analysis.
12445	Beans, Brillat.....	Austin-Nichols Co., New York, N. Y.	E. G. Davis & Sons Co., Henderson
12492	Beans, Rider's Class A...	Farmers Canning Co., Crothersville, Ind.	C. R. Hoskins, Winston-Salem.....
12416	Beans, Mar-Wa-Co.....	Martin-Wagner Co., Baltimore, Md.	Prease Grocery Co., Wilmington....
12444	Beans, LaRose Blanche...	Seeman Bros., New York, N. Y.....	E. G. Davis & Sons Co., Henderson
12453	Beans, Stokely Bros.....	Stokely Bros. & Co., Newport, Tenn.	H. P. Divine & Co., Asheville.....
12454	Beans, Beaumarchand...	Williams, R. C., & Co., New York, N. Y.	A. P. Grizzard, Winston-Salem.....

BEERS, IMITATION AND NEAR-BEERS.

Malt liquor is a beverage made by the alcoholic fermentation of an infusion, in potable water, of barley malt and hops, with or without unmalted grains.

Beer is a malt liquor produced by bottom fermentation, and contains not less than 5.00 per cent of extractive matter and 0.16 per cent of ash, chiefly potassium phosphate, and not less than 2.75 per cent of alcohol by volume.

Lager beer is beer which has been stored in casks for a period not less than three months, and contains not less than 3.00 per cent of alcohol by volume.

RESULTS OF THE EXAMINATION OF

Laboratory Number.	Material and Brand from Label.	Manufacturer or Wholesaler.
12392	Beer, Imitation*.....	Portner, Robert, Brewing Co., Alexandria, Va.....
12408	do*.....	National Beverage Co., Chattanooga, Tenn.....
12337	Beer*.....	Sanaleo Bottling Co., Norfolk, Va.....
12332	Beer, Imitation*.....	Sanaleo Bottling Co., Norfolk, Va.....
12630	Beer*.....	Sanaleo Bottling Co., Norfolk, Va.....
12336	Beer, Imitation*.....	Sanaleo Bottling Co., Norfolk, Va.....
12298	do*.....	Portner, Robert, Brewing Co., Alexandria, Va.....
12163	do*.....	Portner, Robert, Brewing Co., Alexandria, Va.....
12165	do*.....	Portner, Robert, Brewing Co., Alexandria, Va.....
12164	do*.....	Portner, Robert, Brewing Co., Alexandria, Va.....
12162	do*.....	Portner, Robert, Brewing Co., Alexandria, Va.....
12161	do*.....	Portner, Robert, Brewing Co., Alexandria, Va.....
12160	do*.....	Portner, Robert, Brewing Co., Alexandria, Va.....
12251	do*.....	Portner, Robert, Brewing Co., Alexandria, Va.....
12102	do*.....	Portner, Robert, Brewing Co., Alexandria, Va.....
12103	do*.....	Portner, Robert, Brewing Co., Alexandria, Va.....

OF CANNED BEANS.

Laboratory Number.	Preservative or Coloring Matter.	Remarks and Conclusions.
12445	Copper.....	Canned beans, artificially colored with copper sulphate—a poisonous substance; adulterated; sale illegal.
12492	.....	Beans with sauce. Was branded beans with pork and tomato sauce. Contained no pork; misbranded; sale illegal.
12416	None found.....	Canned beans.
12444	Copper.....	Canned beans, artificially colored with copper sulphate—a poisonous substance; adulterated; sale illegal.
12453	None found.....	Canned beans.
12454	Copper.....	Canned beans, artificially colored with copper sulphate—a poisonous substance; adulterated; sale illegal.

The prohibition law prohibits the legal sale of these products in the State. This Department has no appropriation or authority of law for work under the prohibition law. The presence of alcohol in a beverage does not make its sale illegal under the Food Law. For that reason, no official samples have been collected by this Department. However, as an accommodation to city and county officials whose duty it is to enforce the prohibition law, this Department has determined the alcohol in 40 samples sent by them.

As the samples were not official under the Food Law, they were only tested for alcohol, as requested by the officials who sent them to the Department for examination.

BEERS, IMITATION AND NEAR BEERS.

Laboratory Number.	Retail Dealer or Party Who Sent Sample for Analysis.	Alcohol—Per Cent by Volume.	Remarks and Conclusions.
12392	E. H. Gorham, Morehead City.....	0.40	Imitation beer.
12408	do.....	0.33	do.
12337	W. J. Henley, Ayden.....	4.97	Beer.
12332	S. I. Dudley, Greenville.....	0.00	Imitation beer.
12630	do.....	3.08	Beer.
12336	W. J. Henley, Ayden.....	0.00	Imitation beer.
12298	J. A. Turner, Louisburg.....	0.85	do.
12163	J. H. McKenzie, Salisbury.....	0.07	do.
12165	do.....	0.07	do.
12164	do.....	0.07	do.
12162	do.....	0.07	do.
12161	do.....	0.12	do.
12160	M. L. Brewer, Bethel.....	0.00	do.
12251	W. M. Hand, Burgaw.....	2.58	do.
12102	A. S. Lyon, Rocky Mount.....	0.07	do.
12103	do.....	0.07	do.

RESULTS OF THE EXAMINATION OF BEERS,

Laboratory Number.	Material and Brand from Label.	Manufacturer or Wholesaler.
12104 Beer, Imitation*		
12105 ..do*		
12113 Beer*		
12069 ..do*		Virginia Brewing Co., Roanoke, Va.
11913 Beer, Imitation*		
11856 ..do*		Consumers Brewing Co., Norfolk, Va.
11748 ..do*		Virginia Brewing Co., Roanoke, Va.
11744 Beer*		
11408 ..do*		
11742 ..do*		
11644 Beer, Imitation*		
11643 ..do*		
11642 ..do*		Portner, Robert, Brewing Co., Alexandria, Va.
11038 ..do*		
11039 Beer*		
11040 ..do*		
11041 Beer, Imitation*		
11042 ..do*		
11043 ..do*		
11044 ..do*		
11045 ..do*		
11046 ..do*		
11048 ..do*		Consumers Brewing Co., Norfolk, Va.
11047 ..do*		
11109 Beer*		
11110 ..do*		

*Sample sent to this Department for analysis.

BUTTER AND BUTTER SUBSTITUTES.

Butter is the clean, nonrancid product made by gathering in any manner the fat of fresh or ripened milk or cream into a mass, which also contains a small portion of the other milk constituents, with or without salt, and contains not less than 82.50 per cent of milk fat and not more than 16 per cent of water.

Renovated butter, process butter, is the product made by melting butter and working, without the addition or use of chemicals or any

RESULTS OF THE EXAMINATION OF

Laboratory Number.	Material and Brand from Label.	Manufacturer or Wholesaler.	Retail Dealer or Party Who Sent Sample for Analysis.
11063 Butter		Bailey, Paul, Raleigh, N. C.	Rudy & Buffaloe, Raleigh.
11066 Butter		Baugh, H. I., Raleigh, N. C.	Jones & Warner, Raleigh.
11266 Butter, Blue Valley		Blue Valley Creamery Co., Chicago, Kinston Peanut Co., Kinston.	
III.			
11263 Butter		Burgess, J. E., Moltonville, N. C.	B. F. Powell, Clinton.

IMITATION AND NEAR BEERS—*Continued.*

Laboratory Number.	Retail Dealer or Party Who Sent Sample for Analysis.	Alcohol—Per Cent by Volume.	Remarks and Conclusions.
12104	A. S. Lyon, Rocky Mount.....	0.07	Imitation beer.
12105	do.....	0.55	do.
12113	Spray Civic Association, Spray.....	4.50	Beer.
12069	W. L. Brewer, Bethel.....	4.35	do.
11913	W. B. Coleman, Kinston.....	0.15	Imitation beer.
11856	F. G. James & Sons, Greenville.....	0.15	do.
11748	R. P. Webster, Madison.....	1.42	Near beer.
11744	Dr. J. T. Taylor, Madison.....	4.02	Beer.
11408	T. J. Turnage, Madison.....	3.74	do.
11742	J. E. Skinner, Wilson.....	4.03	do.
11644	J. T. Smith, Greenville.....	0.40	Imitation beer.
11643	do.....	0.37	do.
11642	do.....	0.40	do.
11038	W. O. Howard, Tarboro.....	0.18	do.
11039	do.....	3.98	Beer.
11040	do.....	4.03	do.
11041	do.....	0.30	Imitation beer.
11042	do.....	0.38	do.
11043	do.....	0.38	do.
11044	do.....	0.38	do.
11045	do.....	0.41	do.
11046	do.....	0.30	do.
11048	Alex. Sutton, LaGrange.....	0.00	do.
11047	W. O. Howard, Tarboro.....	0.33	do.
11109	J. C. Turnage, Farmville.....	3.40	Beer.
11110	do.....	3.70	do.

substance except milk, cream, or salt, and contains at least 82.50 per cent of milk fat and not more than 16 per cent of water.

Oleomargarine, oleo or butterine, is a substitute for butter, made from other and cheaper fats than butter.

During the year 65 samples of butter, renovated butter, and oleomargarine have been examined, 3 of which were adulterated. Sample No. 11277 was sold by retail dealer as butter, but proved to be a process or renovated butter, and Nos. 11901 and 11903 were below standard in fat and contained too much water.

BUTTER AND BUTTER SUBSTITUTES.

Laboratory Number.	Fat, Butter—Per Cent.	Water—Per Cent.	Reading Refractometer, 40° C.	Refractive Index.	Remarks and Conclusions.
11063	-----	12.59	45.0	1.4558	Butter.
11066	-----	11.01	43.0	1.4545	do.
11266	-----	9.63	43.5	1.4548	do.
11263	-----	-----	40.0	1.4524	do.

RESULTS OF THE EXAMINATION OF BUTTER

Laboratory Number.	Material and Brand from Label.	Manufacturer or Wholesaler.	Retail Dealer or Party Who Sent Sample for Analysis.
11902	Butter.....	Cedar Grove Dairy, Climax, N. C.	Troxler Bros., Greensboro.....
11904	do.....	Coble, John T., Julian, N. C.	J. H. Low, Greensboro.....
11275	Butter, Ayrshire.....	Christians, H. C., Co., Johnson Creek, Wis.	T. E. White, Edenton.....
11926	Butter, Parkdale.....	Continental Creamery Co., Topeka, Kan.	Morgan & Parker, Elizabeth City.....
11277	do.....	do.....	do.....
12274	Butter.....	Councilman, H. C., Rock Creek, N. C.	R. L. Clapp & Bro., Graham.....
11914	do.....	David, D., Greensboro, N. C.	J. C. Fogleman & Co., Greens- boro.
11281	Butter, White Oak.....	Davis, W. P., & Son, Battleboro, N. C.	Cuthrell & Sons, Rocky Mount.....
11286	Butter, Dold Quality.....	Dold, Jacob, Packing Co., Rich- mond, Va.	Ellis & Co., Wilson.....
11058	Butter.....	Dunston, George, Raleigh, N. C.	J. D. Allen, Raleigh.....
11278	Butter, White Clover.....	Elgin Butter Co., Elgin, Ill.	Tarboro Grocery Co., Tarboro.....
11285	Butter.....	Ellen, Mrs. C. F., Battleboro, N. C.	Cobb Bros., Rocky Mount.....
11258	Butter, Liquid Gold.....	Fairmount Creamery Co., Omaha, Neb.	Sanford Supply Co., Sanford.....
11267	Butter, Meadow Gold.....	Fox River Butter Co.	Fred R. Nunn, Kinston.....
11268	Butter, Green Leaf Clover.....	Friedman Mfg. Co., Norfolk, Va.	J. E. Williams, Kinston.....
11276	do.....	do.....	M. A. Hughes, Edenton.....
11259	Oleomargarine.....	do.....	F. L. Orr, Maxton.....
11821	Butter, Green Leaf Clover.....	do.....	W. R. Brothers, Edenton.....
11055	Butter.....	Griffis, T. H., Raleigh, N. C.	E. N. Pool, Raleigh.....
11064	do.....	Haley, J. S., Raleigh, N. C.	Rudy & Buffaloe, Raleigh.....
11930	do.....	Hargett, B. F., Matthews, N. C.	S. M. Burdell, Charlotte.....
11280	do.....	Harper, L. H., Rocky Mount, N. C.	F. S. Gardner, Rocky Mount.....
11920	do.....	Hart, S. M., Mount Ulla, N. C.	Theo. Atwell, Salisbury.....
11262	do.....	Hobbs, Mike, Clinton, N. C.	J. C. Peterson, Clinton.....
11900	do.....	Huffine Store Co., Summerville, N. C.	L. A. Andrews, Greensboro.....
11269	Butter, Queen City.....	King & Co., Richmond, Va.	Elmer Nichols, Morehead City.....
11918	Butter.....	Koontz, C. G., Lexington, N. C.	Tussey & Koontz, Lexington.....
11284	do.....	Lancaster, Mrs. J. B., Rocky Mount, N. C.	J. B. Lancaster & Son, Rocky Mount.
11927	do.....	Medford, John, Clyde, N. C.	Waynesville Produce Co., Waynesville.
11273	Butter, Prairie Rose.....	Meridian Creamery Co., Kansas City, Mo.	E. B. Hackburn, New Bern.....
11264	do.....	do.....	W. D. Creech, Goldsboro.....
11265	Butter.....	Mitchell, N. C., Snow Hill, N. C.	Floyd Barwick, LaGrange.....
11905	do.....	Moore, June, High Point, N. C.	J. E. Pennyman, High Point.....
11689	do.....	Morrison, J. K., Grocery and Produce Co.	N. G. Yarborough, Raleigh.....
11274	do.....	Mooresboro Creamery Co., Moores- boro, N. C.	Walter Credle, Washington.....
11233	do.....	Oak Grove Creamery, Battleboro, N. C.	J. B. Lancaster & Son, Rocky Mount.
11271	do.....	Pratt, S. T., New York, N. Y.	H. C. Armstrong, New Bern.....
11261	Butter, Green Mountain.....	Russell Crego & Son, New York, N. Y.	N. Humphrey, Wilmington.....
11065	Butter, Better.....	Southern Distributing Co., Nor- folk, Va.	Rudy & Buffaloe, Raleigh.....

AND BUTTER SUBSTITUTES—*Continued.*

Laboratory Number.	Fat, Butter— Per Cent.	Water— Per Cent.	Reading Refractometer, 40° C.	Refractive Index.	Remarks and Conclusions.
11902	87.00	9.70	43.0	1.4545	Butter.
11904	86.80	11.03	43.5	1.4548	do.
11275	-----	5.64	43.0	1.4545	do.
11926	-----	-----	42.0	1.4538	Renovated or process butter.
11277	-----	10.89	42.0	1.4538	Renovated butter. Was sold by dealer as butter; sale illegal.
12274	-----	13.71	44.0	1.4552	Butter.
11914	85.15	11.83	43.0	1.4545	do.
11231	-----	8.79	42.0	1.4538	do.
11286	-----	13.71	43.5	1.4548	do.
11058	-----	13.11	43.0	1.4545	do.
11278	-----	6.58	43.5	1.4548	do.
11235	-----	10.79	42.5	1.4542	do.
11258	-----	14.01	42.0	1.4538	do.
11267	-----	7.09	41.0	1.4531	do.
11268	-----	-----	41.0	1.4531	do.
11276	-----	-----	43.0	1.4545	do.
11259	-----	7.16	48.0	1.4580	Oleomargarine.
11821	86.64	10.64	43.5	1.4558	Butter.
11055	-----	10.25	44.0	1.4552	do.
11064	-----	12.50	44.0	1.4552	do.
11930	83.36	14.50	44.0	1.4552	do.
11280	-----	7.16	42.0	1.4538	do.
11920	87.21	9.92	43.0	1.4545	do.
11262	-----	-----	43.5	1.4548	do.
11900	87.50	9.97	43.5	1.4550	do.
11269	-----	8.19	43.0	1.4545	do.
11918	82.40	14.81	43.0	1.4545	do.
11284	-----	11.06	40.5	1.4527	do.
11927	85.04	11.88	44.0	1.4552	do.
11273	-----	7.01	44.0	1.4552	do.
11264	-----	11.83	42.0	1.4538	do.
11265	-----	8.23	41.0	1.4531	do.
11905	83.60	15.04	43.5	1.4548	do.
11689	81.70	14.26	42.5	1.4541	Butter, slightly below standard in fat; should contain 82.50 per cent milk fat.
11274	-----	12.00	43.0	1.4545	Butter.
11283	-----	9.44	40.0	1.4524	do.
11271	-----	6.39	42.0	1.4538	do.
11261	-----	-----	41.0	1.4531	do.
11065	-----	11.26	44.0	1.4552	do.

RESULTS OF THE EXAMINATION OF BUTTER

Laboratory Number.	Material and Brand from Label.	Manufacturer or Wholesaler.	Retail Dealer or Party Who Sent Sample for Analysis.
11928	Butter.....	Summerville, J. Stanhope, Charlotte, N. C.	S. H. Youngblood, Charlotte.....
11272	Oleomargarine.....	Swift & Co., Norfolk, Va.....	H. C. Armstrong, New Bern.....
11057	Butter, Cold Rock.....	Swift & Co., Raleigh, N. C.....	Hood & Richardson, Raleigh.....
11061	Butter.....	Terry, Mrs., Raleigh.....	Fraps, F. J., Raleigh.....
11279	do.....	Thrash, Mrs. T. W., Tarboro, N. C.	W. A. Warren, Tarboro.....
11282	do.....	Tilleybrews, Dr. C. L., Rocky Mount, N. C.	W. T. Williford, Rocky Mount.....
11917	do.....	Walton, W. A., Lexington, N. C.....	Tussey & Koontz, Lexington.....
11919	do.....	White, H. Z., Salisbury, N. C.....	H. Z. White, Salisbury.....
11056	do.....		T. C. Capell, Raleigh.....
12273	do.....		Mrs. G. A. Clute, Clinton.....
11054	do.....		Denning & Williams, Raleigh.....
11929	do.....		Elliott & Severs, Charlotte.....
11901	do.....		M. S. Jeffreys, Greensboro.....
11911	do.....		do.....
11898	do.....		Johnson & Johnson Co., Aberdeen
11899	do.....		do.....
11916	do.....		Kennedy Bros., High Point.....
11906	do.....		L. M. McCormick, Asheville.....
11059	do.....		Minnie Smith, Raleigh.....
11060	do.....		Todd & Haynes, Raleigh.....
11903	do.....		Troxler Bros., Greensboro.....
11260	do.....		J. H. Wishart, Lumberton.....
11062	do.....		W. W. Williams & Co., Raleigh...

CHEMICAL PRESERVATIVES.

(SO-CALLED FRUIT POWDERS.)

Chemical food preservatives have for several years had much attention from food officials, and much has been said in regard to their use in food for human consumption.

Only 4 samples of these powders have been examined during the year, all of which proved to be composed largely or wholly of salicylic acid.

An investigation by the Bureau of Chemistry, United States Department of Agriculture, has shown conclusively that the use in food of salicylic acid is deleterious to health. The report showed that salicylic

AND BUTTER SUBSTITUTES—*Continued.*

Laboratory Number.	Fat, Butter— Per Cent.	Water— Per Cent.	Reading Refractometer, 40° C.	Refractive Index.	Remarks and Conclusions.
11928	82.61	14.99	43.5	1.4548	Butter.
11272	-----	4.94	50.5	1.4597	Oleomargarine.
11057	-----	13.73	44.0	1.4552	Butter.
11061	-----	10.34	45.0	1.4558	do.
11279	-----	10.73	41.5	1.4535	do.
11282	-----	12.03	42.0	1.4538	do.
11917	86.17	12.16	43.0	1.4545	do.
11919	80.30	13.73	41.5	1.4534	do.
11056	-----	11.68	44.0	1.4552	do.
12273	86.23	11.14	45.0	1.4558	do.
11054	-----	9.48	45.0	1.4558	do.
11929	82.74	14.54	44.5	1.4556	do.
11901	75.90	20.54	45.0	1.4559	Butter, adulterated; too high in water and too low in fat; sale illegal.
11911	88.23	11.40	41.0	1.4531	Butter.
11898	86.40	-----	45.0	1.4559	Butter, medium quality.
11899	91.40	-----	45.0	1.4559	do. do.
11916	86.88	12.82	43.0	1.4545	Butter.
11906	-----	-----	42.5	1.4542	do.
11059	-----	12.51	45.0	1.4558	do.
11060	-----	13.45	46.0	1.4565	do.
11903	80.60	17.49	44.0	1.4552	Butter; contains too much water and slightly below standard in milk fat; sale illegal.
11260	-----	-----	42.0	1.4538	Butter.
11062	-----	12.66	45.0	1.4558	do.

acid, when used in food, at first is a stimulant, increasing the solubility and absorption of food elements from the alimentary canal. It soon, however, loses its stimulating effect and becomes a depressent, tending to break down the tissues faster than they are rebuilt, to diminish the weight of the body and in some cases to result in illness.

The knowledge that we have of the effect of all chemical preservatives on digestion and health tends to show that they are deleterious, and that their effect on the health of the consumer depends upon the quantity and frequency of the dose.

The sale of salicylic acid or of fruit-preserving powder, if properly labeled, is legal, but if added to foodstuff, salicylic acid or fruit powder containing salicylic acid renders the sale of the food illegal.

RESULTS OF THE EXAMINATION OF

Laboratory Number.	Material and Brand from Label.	Manufacturer or Wholesaler.	Retail Dealer or Party Who Sent Sample for Analysis.
12600	Salicylic Acid.....	Frank Tea and Spice Co., Cincinnati, Ohio.	W. R. Tillery, Alexander.....
12598	Fruit Powder, Perry's Never Fail.	Norman-Perry Drug Co. Winston-Salem, N. C.	Finch Bros., Lexington.....
12601	Salicylic Acid.....	Smith, Dr. T. C., Asheville, N. C.	Smathers-Reno Co., Andrews...
12599	Fruit Powder, Yerks' Sure Keep.	Vaughan-Crutchfield Co., Winston-Salem, N. C.	G. H. Lowdermilk, Morganton.

CHEESES.

Cheese is the sound, solid, and ripened product made from milk and cream by coagulating the casein thereof with rennet or lactic acid, with or without the addition of ripening ferments and seasoning, and contains, in the water-free substance, not less than 50 per cent of milk fat.

Skim-milk cheese or part skim-milk cheese is the sound, solid, and ripened product made from skim-milk or part skim-milk.

A product of this kind containing less than 50 per cent of milk fat in the water-free substance must be sold as skim-milk cheese or as part skim-milk cheese, as the case may be, or under some name that will indicate to the purchaser that it is not a standard cheese.

Sixty-four samples were examined, 20 of which were adulterated,

RESULTS OF THE EXAMINATION OF

Laboratory Number.	Material and Brand from Label.	Sold by Retail Dealer as—	Manufacturer or Wholesaler.	Retail Dealer or Party Who Sent Sample for Analysis.
11257	Antrim's Best Cheese.	Cheese.....	Antrim, C. W., & Sons, Richmond, Va.	Ideal Grocery Co., Selma.....
11255	do.....	Cream cheese.....	do.....	Cummins Grocery Co., Tarboro.
11253	do.....	do.....	do.....	Harrison Bros. & Co., Williamston.
11243	Antrim's Best Cheese.	Cheese.....	do.....	Henry French, Kinston.....
11931	do.....	Cream cheese.....	Armour & Co., Charlotte, N. C.	J. W. Cooper, Charlotte.....
11249	do.....	do.....	Armour & Co., Norfolk, Va.	J. F. Bishop, Belhaven.....
11245	Winona Cheese	do.....	Armour & Co., New Bern, N. C.	W. H. Hilliard, Morehead City.
11069	do.....	Cheese.....	Ball, J. G., & Co., Raleigh, N. C.	E. D. Smith, Raleigh.....
11076	do.....	do.....	do.....	J. B. Allen, Raleigh.....
11246	do.....	Cream cheese.....	Brinkley, A., & Co., Norfolk, Va.	J. C. Helms, Morehead City.....
11238	Excels'r Cheese	Cheese.....	Burdick, E. F., Wilmington, N. C.	Peter Mohr, Wilmington.....

CHEMICAL FRUIT PRESERVING POWDERS.

Laboratory Number.	Remarks and Conclusions.
12600	Salicylic acid. Salicylic acid used in food is deleterious to health and renders the sale of the food illegal.
12598	Composed largely of salicylic acid. Salicylic acid used in food is deleterious to health and renders the sale of the food illegal.
12601	Salicylic acid. Salicylic acid used in food is deleterious to health and renders the sale of the food illegal.
12599	Composed largely of salicylic acid. Salicylic acid used in food is deleterious to health and renders the sale of the food illegal. The label should show that the powder contains salicylic acid.

misbranded, or misrepresented. On account of the way cheese is sold at retail, it is an easy matter for a dealer to buy skim-milk cheese and sell same to his customers as cheese, and it seems to be quite the practice to do so—at least, they often sell skim-milk cheese as cheese. The Food Law provides that if a food product is below standard, it is deemed to be adulterated and its sale illegal.

A product made as above described, that contains less than 50 per cent milk fat in the water-free substance, cannot be legally sold as cheese, but must be sold as skim-milk cheese or part skim-milk cheese, as the case may be.

Retail dealers are cautioned that the sale of skim-milk cheese as cheese will have to be prosecuted under the Food Law.

CHEESES AND CHEESE SUBSTITUTES.

Laboratory Number.	Milk Fat, Water-Free Basis—Per Cent.	Reading Refractometer on Fat, 40° C.	Refractive Index.	Water—Per Cent.	Remarks and Conclusions.
11237	49.23	45.0	1.4559	30.87	Cheese, slightly below standard in milk fat.
11255	51.72	44.5	1.4555	31.62	Cheese.
11253	49.43	45.5	1.4562	33.95	Cheese, slightly below standard in milk fat.
11243	54.49	45.5	1.4562	34.02	Cheese.
11031	49.80	44.5	1.4555	30.70	do.
11249	52.99	44.5	1.4555	33.96	do.
11245	49.43	44.5	1.4555	30.79	Cheese, slightly below standard in milk fat.
11069	38.61	-----	-----	34.44	Cheese, below standard in milk fat; misrepresented by retail dealer; sale illegal.
11076	52.86	44.0	1.4552	35.04	Cheese.
11246	50.72	44.5	1.4555	34.43	do.
11238	52.78	44.0	1.4552	38.33	do.

RESULTS OF THE EXAMINATION OF CHEESES

Laboratory Number.	Material and Brand from Label.	Sold by Retail Dealer as—	Manufacturer or Wholesaler.	Retail Dealer or Party Who Sent Sample for Analysis.
11924	Cream cheese.		Davis Bros. Cheese Co., Charlotte, N. C.	Taylor & Co., Salisbury
11067	Cheese, Tarbell Cheese.		Dewar & Wilder, Raleigh, N. C.	A. W. Matthews, Raleigh
11072	Cheese.	do.	do.	T. C. Capell, Raleigh
11070	do.	do.	Dunn Bros., Raleigh, N. C.	Denning & Williams, Raleigh
11077	do.	do.	do.	Minnie Smith, Raleigh
11081	do.	do.	do.	Jones & Warner, Raleigh
11256	do.	do.	Edwards, George S., & Co., Rocky Mount, N. C.	Smith, Parham & Co., Rocky Mount
11254	Skim-milk cheese.		Friedman Mfg. Co., Norfolk, Va.	W. S. Fleming, Greenville
11230	Red Rose.	Cheese.	Hart, George S., & Co., New York, N. Y.	Pittman Bros., Goldsboro
11239	do.	do.	do.	Peter Mohr, Wilmington
11247	do.	do.	Hobbs, F. H., Co., Norfolk, Va.	M. R. Springle, Beaufort
11231	Cheese, Part Skim.	do.	Howard, Brown & Co., Richmond, Va.	D. J. McDuffie, Laurinburg
12398	Cheese, Superior.	do.	Kiel Cheese and Butter Co., Kiel, Wis.	J. Taylor, High Point
11922	do.	do.	do.	C. Durham, High Point
12250	Cheese, Reliable.	do.	Kingan & Co., Richmond, Va.	J. A. Isley & Bro. Co., Burlington
12397	Cream cheese.	do.	do.	M. S. Jeffreys, Greensboro
12277	Cheese, Daisy.	Daisy cheese.	do.	J. R. Cummins, Winston-Salem
11814	Cheese.	do.	Morris & Co., Richmond, Va.	F. W. Mitchell, Enfield
11235	do.	do.	Morris Packing Co., Wilmington, N. C.	D. J. Burnett & Bro., Wilmington
11078	do.	do.	Norris Bros., Raleigh, N. C.	F. J. Fraps, Raleigh
11074	do.	do.	Marsh, George, Co., Raleigh, N. C.	W. H. Lyon, Raleigh
12395	Cream cheese.	do.	Patterson & Co., Greensboro, N. C.	S. M. Hill, Greensboro
11079	Cream Cheese, Blue Ribbon.	Cheese.	Peebles Bros., Raleigh, N. C.	J. P. Whitley, Raleigh
11232	do.	do.	Phillips, B. W., Maxton, N. C.	Pace & McQueen, Maxton
11241	Cheese, Triumph.	Cream cheese.	Powell, B. F., Clinton, N. C.	J. C. Peterson, Clinton
11248	do.	do.	Pratt, S. T., New York, N. Y.	H. C. Armstrong, New Bern
11819	Cheese, Part Skimmed.	Cheese.	Reavis, P. A., Louisburg, N. C.	E. J. Macon, Louisburg
11244	Cheese, Longhorn.	Cream cheese.	Scott & Co., Norfolk, Va.	J. C. Helms, Morehead City
11242	do.	do.	do.	J. E. Royal & Son, Clinton
11815	Skim-milk cheese.	do.	do.	C. J. Evans, Weldon
11252	Cheese, Whole Milk.	Cream cheese.	do.	W. J. Hodges, Williamston
11075	Cheese, Clara-belle.	Cheese.	do.	Hood & Richardson, Raleigh
12396	Cream cheese.	do.	Smitherman & Co., Greensboro, N. C.	A. L. Younts Grocery Co., Greensboro

AND CHEESE SUBSTITUTES—*Continued.*

Laboratory Number.	Milk Fat, Water-Free Basis—Per Cent.	Reading Refractometer on Fat, 40°C.	Refractive Index.	Water—Per Cent.	Remarks and Conclusions.
11924	56.90	44.2	1.4553	35.24	Cheese.
11067	39.57	-----	-----	35.70	Cheese, below standard in milk fat; misrepresented by retail dealer; sale illegal.
11072	57.41	-----	-----	36.47	Cheese.
11070	55.41	-----	-----	34.76	do.
11077	50.00	44.0	1.4552	34.20	do.
11081	46.30	44.0	1.4552	36.79	Cheese, below standard in milk fat; misrepresented by retail dealer, sale illegal.
11256	51.26	-----	-----	33.12	Cheese.
11254	22.46	44.5	1.4555	43.92	Skim-milk cheese.
11230	63.66	44.0	1.4552	33.92	Cheese.
11239	51.37	44.8	1.4557	35.29	do.
11247	57.60	43.0	1.4545	31.75	do.
11231	28.43	44.5	1.4555	35.94	Skim-milk cheese. Was sold by retail dealer as cheese; misrepresented; sale illegal.
12398	50.00	44.0	1.4552	35.10	Cheese.
11922	50.84	45.2	1.4561	34.49	do.
12280	57.30	44.5	1.4555	-----	do.
12397	55.70	44.0	1.4552	33.60	do.
12277	53.54	44.8	1.4557	35.54	do.
11814	51.47	45.0	1.4559	32.92	do.
11235	50.64	44.0	1.4552	35.29	do.
11078	46.80	44.0	1.4552	37.03	Cheese, below standard in milk fat; misrepresented by retail dealer; sale illegal.
11074	44.20	45.0	1.4558	35.78	do.
12395	43.90	43.5	1.4548	34.81	do.
11079	45.10	44.0	1.4552	30.64	Cheese, below standard in milk fat; misbranded; sale illegal.
11232	47.88	45.5	1.4562	31.50	Cheese, little below standard in milk fat; misrepresented by retail dealer; sale illegal.
11241	54.64	43.2	1.4546	33.24	Cheese.
11248	48.63	45.5	1.4562	33.77	Cheese, slightly below standard.
11819	18.28	45.0	1.4559	44.64	Skim-milk cheese. Was sold by retail dealer as cheese; misrepresented; sale illegal.
11244	52.77	44.0	1.4552	37.65	Cheese.
11242	25.31	44.8	1.4557	32.43	Skim-milk cheese. Was sold by retail dealer as cheese; misrepresented; sale illegal.
11815	33.52	45.0	1.4560	39.26	Skim-milk cheese.
11252	48.18	45.0	1.4559	32.25	Cheese, slightly below standard in milk fat.
11075	50.79	45.5	1.4562	36.38	Cheese.
12396	41.90	44.0	1.4552	32.10	Cheese, below standard in milk fat. Was sold by retail dealer as cheese; misrepresented; sale illegal.

RESULTS OF THE EXAMINATION OF CHEESES

Laboratory Number.	Material and Brand from Label.	Sold by Retail Dealer as—	Manufacturer or Wholesaler.	Retail Dealer or Party Who Sent Sample for Analysis.
11237	Cream cheese		Stevenson, J. C. Co., Wilmington, N. C.	Wreade Bros., Wilmington.
11236	do	do		J. H. Mohr, Wilmington
11234	Cheese, Skim.	do		J. D. Burnett & Bro., Wilmington.
11240	do		Stone, S. D., Wilmington, N. C.	W. D. Kelly, Trenton.
11071	Cheese			E. N. Pool, Raleigh.
11073	Cheese, Swift's Brookfield.	do	Swift & Co., Raleigh, N. C.	J. R. Hubbard, Raleigh.
11813	do		Swift & Co., Rocky Mount, N. C.	City Grocery Co., Elm City.
11818	do		Swift & Co., Raleigh, N. C.	W. F. Davis, Louisburg.
11816	do		Swift & Co., Norfolk, Va.	J. H. Newsom, Littleton.
12279	do		Swift & Co., Durham, N. C.	J. M. Tisdale, Burlington.
11817	do	do		J. M. Ellington & Son, Oxford.
11068	Cheese, Full Cream.	do	Taylor, J. A., Wilmington, N. C.	M. F. Edwards, Raleigh.
12275	Cheese, Imperial. Selected Full Cream.	do	Verney, F. S., Winston-Salem, N. C.	Vogler & Hegge, Waughtown.
12276	do	do	do	A. P. Grizzard, Winston-Salem.
11233	Cream cheese.		Vollers, H. L., Wilmington, N. C.	W. H. Hines, Wilmington.
12278	Full cream.		West-Hill Co., Mount Airy, N. C.	W. F. Midkiff, Mount Airy.
11251	Cream cheese		Woodley, W. J., Elizabeth City, N. C.	W. T. Williams, Elizabeth City.
11250	do			Citizens Supply Co., Belhaven.
11923	do			W. L. Kluttz, Salisbury.
11080	Cheese.			W. W. Williams & Co., Raleigh.

CIDER AND IMITATION CIDERS.

Cider is a product made by the normal alcoholic fermentation of apple juice, and the usual cellar treatment, and contains not more than 7 per cent of alcohol by volume, not less than 2 per cent and not more than 12 per cent of solids, not more than 8 per cent of reducing sugars, and not less than 0.2 per cent nor more than 0.4 per cent of cider ash.

From a former annual report of this Department the following is quoted:

"Cider, to comply with the North Carolina Food Law, must be made entirely of unadulterated apple juice. A product made from the

AND CHEESE SUBSTITUTES—*Continued.*

Laboratory Number.	Milk Fat, Water-Free Basis—Per Cent.	Reading Refractometer on Fat, 40°C.	Refractive Index.	Water—Per Cent.	Remarks and Conclusions.
11237	49.88	45.0	1.4559	32.43	Cheese, slightly below standard.
11236	51.54	45.0	1.4559	33.07	Cheese.
11234	21.58	45.5	1.4562	38.97	Skim-milk cheese. Was sold by retail dealer as cheese; misrepresented; sale illegal.
11240	48.17	43.5	1.4548	33.87	Cheese, slightly below standard in milk fat.
11071	41.48	-----	-----	37.00	Cheese, below standard in milk fat. Was sold by retail dealer as cheese; misrepresented; sale illegal.
11073	45.05	44.0	1.4552	30.25	Cheese, below standard in milk fat; misbranded; sale illegal.
11813	55.46	-----	-----	34.32	Cheese.
11818	50.20	45.0	1.4560	32.09	do.
11816	51.86	44.1	1.4553	34.98	do.
12279	46.95	44.7	1.4557	36.95	Cheese, below standard in milk fat. Was sold by retail dealer as cheese; misrepresented; sale illegal.
11817	47.48	-----	-----	30.27	Cheese, below standard in milk fat; misrepresented by retail dealer; sale illegal.
11068	51.33	45.0	1.4558	36.32	Cheese.
12275	50.10	44.5	1.4555	38.23	do.
12276	53.61	45.0	1.4559	37.00	do.
11233	46.65	44.8	1.4557	34.17	Cheese, below standard in milk fat. Was sold by retail dealer as cheese; misrepresented; sale illegal.
12278	57.13	45.5	1.4562	-----	Cheese.
11251	48.37	45.0	1.4559	34.09	Cheese, slightly below standard in milk fat.
11250	49.25	45.2	1.4560	35.08	do.
11923	45.91	-----	-----	34.40	Cheese, below standard in milk fat. Was sold by retail dealer as cheese; misrepresented; sale illegal.
11080	39.10	44.0	1.4552	35.66	Skim-milk cheese. Was sold by retail dealer as cheese; misrepresented; sale illegal.

juice of any other fruit than apples, if offered for sale, must bear the name of the fruit from which it is made. If artificial color or flavor is added, the fact must be stated on the label, and the product must be sold as a compound or an imitation cider; otherwise it will be classed as adulterated or misbranded, and the sale prohibited.

During the year 22 samples of these products have been examined, all of which were sent to the Department by county and city officials for analysis; the object being the enforcement of the prohibition law. As no claim or statement was made in regard to their composition or purity, they were tested for alcohol only.

The results of the examination and the name of the party who sent sample to the Department for analysis are published in the table below.

RESULTS OF THE EXAMINATION OF

Laboratory Number.	Material and Brand from Label.	Retail Dealer or Party Who Sent Sample for Analysis.
11891	Cider, Compound*	Allen, A. J., Mayor, Lilesville
11892	...do*	...do.
11890	...do*	Ballard, T. J., Morven
11889	...do*	...do.
11405	Cider*	...do.
12254	Cider, Compound*	City Grocery Co., Madison
11857	...do*	Davis, R. L., Raleigh
11404	Cider, Apple*	Davis, S. E., Plymouth
11108	Cider, Compound*	Robinson & Caudle, Wadesboro
12065	Cider, Apple*	Joyce, L. G., Reidsville
12250	Cider, Imitation*	Kirby, J. H., Mayor, Kenly
12317	Cider, Compound*	McCallum, A. T., Red Springs
12067	Cider, Imitation*	...do.
12640	Cider, Imitation, Mezzo*	Murray & Armstrong, Wallae
11050	Cider, Imitation*	Newberry, W. R., Mayor, Magnolia
11049	...do*	...do.
11051	...do*	...do.
12333	Cider, Compound*	Peel, James F., Mayor, LaGrange
12334	...do*	...do.
11910	...do*	Pope, W. A., Tillery
11688	Cider, Flatfoot*	Ragan, C. A., Kings Mountain
11762	Cider, Compound*	Thomason, W. T., Lexington
12628	...do*	Chief of Police, Kenly

COFFEE AND COFFEE SUBSTITUTES.

Coffee is the seed of a small tree, *coffea*, whose fleshy fruit is about the size of a small cherry, and contains two seeds joined on their flat sides, which when freed from the pulp and the enveloping membrane are the coffee beans of commerce.

Roasted coffee is coffee which by the action of heat has become brown and developed its characteristic aroma, and contains not less than 10 per cent of fat and 3 per cent of ash.

The principal action or stimulating constituent of coffee is caffeine, a white, bitter crystallizable substance.

The principal material which is used to mix with and adulterate coffee is chicory, though cereals and leguminous seeds, such as wheat, rye, barley, beans, and peas are often used. Many brands of so-called coffee on the market contain from 20 to 60 per cent of chicory. The manufacturers of these products generally claim that the chicory is added, not to adulterate, but to actually improve the quality and to give strength to the coffee. This claim is misleading to the public. Roasted chicory contains a large amount of caramel and starchy matter, that impart to the product, when made into a liquid for use as a beverage, a black, thick, soup-like appearance. The effect produced in coffee by chicory can no more correctly be regarded as adding strength to the

*Sample sent to the Department for analysis.

CIDERS AND IMITATION CIDERS.

Laboratory Number.	Alcohol (by Volume) Per Cent.	Remarks and Conclusions.
11891	5.27	Compound cider.
11892	6.00	do.
11890	6.25	do.
11889	4.55	do.
11405	1.55	Cider.
12254	-----	Compound cider, preserved with benzoate.
11857	7.05	Compound cider.
11404	9.35	Cider.
11108	7.95	Compound cider.
12065	7.25	Cider.
12250	6.22	Imitation cider.
12317	6.23	Compound cider.
12067	5.75	Imitation cider, artificially colored and preserved with benzoate.
12640	-----	Imitation cider, preserved with benzoate.
11050	6.24	Imitation cider.
11049	6.14	do.
11051	5.55	do.
12333	6.72	Compound cider.
12334	5.70	do.
11910	6.12	do.
11688	8.16	Imitation cider; sale as cider illegal.
11762	6.01	Compound cider.
12628	8.36	do.

coffee than if so much roasted starch and caramel had been added to it. *Chicory is not added to coffee to give it strength, but to cheapen the product.*

The addition of chicory or any other substance to coffee, without stating the fact on the label, is a violation of the law. Chicory and cereals cost less than one-fifth the price of coffee. Then, why pay the price of coffee for chicory and cereals when the latter are mixed with coffee?

Of these, 94 samples were examined, 13 of which appear to have been adulterated, misbranded, or misrepresented by the retail dealer. Four samples, Nos. 12138, 12140, 12506, and 12491, were sold under so-called "proprietary" or "distinctive" names, "North State" and "My Kind."

There appears to be no good reason why a product that is in no way distinctive in its composition or character should be sold under a distinctive name, except as a subterfuge, to evade the placing of the real name on the package, and to make it easier for a product like these to be misrepresented and sold as coffee, as was the case in the sale of two of these samples. They are merely coffee and chicory, or coffee, chicory, and cereal, and are not unlike in any particular many other such products on the market. They should be plainly labeled what they are, so there would or could be no deception about them.

Retail dealers are cautioned that the sale of these products as coffee will be prosecuted as violations of the Food Law.

RESULTS OF THE EXAMINATION OF

Laboratory Number.	Material and Brand from Label.	Manufacturer or Wholesaler.	Retail Dealer or Party Who Sent Sample for Analysis.
12122	Coffee and Chicory, Honey-moon.	American Coffee Co., New Orleans, La.	W. F. McDeeters & Co., Marion
11695	Coffee, Maricaoibo.	Antrim, C. W., & Sons, Richmond, Va.	J. R. Ferrall & Co., Raleigh.
11690	Coffee.	do.	Thiem & Birdsong, Raleigh.
12335	Coffee, Como.	do.	J. W. Davenport, Rocky Mount
11746	Coffee, Battle Axe.	Aragon Coffee Co., Richmond, Va.	L. Thomas, Oxford.
11668	Coffee and Chicory, Premium	do.	Needham Willis, Morehead City
12484	do.	do.	L. B. McAdams, Burlington.
12119	Coffee and Chicory, Break-fast Bell.	do.	J. W. & D. S. Fuller, Oxford.
11669	Coffee and Chicory, Norsolina	Austin-Nichols Co., New York, N. Y.	C. A. Clawson, Beaufort.
11650	Coffee, Morning Glory.	do.	R. A. Montgomery, Wilmington
11695	Coffee.	do.	J. R. Ferrall & Co., Raleigh
11678	Coffee, Betsy.	Banks & Hughes, Elizabeth City, N. C.	Amos Owens, Elizabeth City.
12126	Coffee, Blank's World's Fair.	Blank, C. F., Tea and Coffee Co., St. Louis, Mo.	W. Christopher, Murphy.
12114	Coffee, Surprise.	Bowers Bros., Richmond, Va.	Eli Garner, Elm City.
11654	Coffee, Town and Country.	Brownell & Field Co., Providence, R. I.	J. S. Westbrook, Wilmington.
11679	Coffee, Cahoon's Special.	Cahoon, Clyde, Plymouth, N. C.	Clyde Cahoon, Plymouth.
12118	Coffee, Tabard Inn.	Cauchois, F. A., & Co., New York, N. Y.	Sizemore Bros., Oxford.
11667	Coffee, Superior.	Chase & Sanborn, Boston and Chicago.	Spencer & Co., Kinston.
12121	Coffee and Chicory, Charmer	Cheek-Neal Coffee Co., Nashville, Tenn.	Cash Grocery Co., Statesville.
11662	Coffee, Our Own.	Derr, J. G., Goldsboro, N. C.	J. G. Derr, Goldsboro.
11693	do.	Dwinell-Wright Co., Boston, Mass.	Rudy & Buffalo, Raleigh.
11691	Coffee.	do.	W. B. Mann & Co., Raleigh.
11645	Coffee, Caraja.	do.	J. F. Hudson, Wilmington.
12483	Coffee, Engelhardt Sarico.	Engelhardt, A., & Sons Co., Louisville, Ky.	Hazell & Mimm, Reidsville.
12481	Coffee and Chicory, Hotel Blend.	Fletcher & Wilson Coffee Co., Nashville, Tenn.	C. E. Davis, Mount Airy.
11692	Coffee.	Gill, James G., Norfolk, Va.	A. S. Womble, Raleigh.
11658	Coffee, Queen's Blend.	do.	W. D. Duncan, Wilmington.
11665	Coffee, Gold Bond.	do.	Burrell Stroud, Kinston.
11671	Coffee, White Star.	do.	Pure Food Grocery, Washington
11683	Coffee and Chicory, Booker T.	do.	Kelly Bryant, Rocky Mount.
12330	Coffee and Vegetable Mixture, Jokma.	Gillies Coffee Co., New York, N. Y.	Banks & Hughes, Elizabeth City.
11648	Coffee, Gillies'.	Gillies, Edwin J., & Co., New York, N. Y.	McLaurin & Shaw, Laurinburg.
11694	Coffee, Star.	do.	Johnson & McCullers, Raleigh.
11655	Coffee, Primero.	Hall, Martin L., & Co., Boston, Mass.	The Thomas Grocery Co., Wilmington.
11681	Coffee, DeLite.	do.	W. H. Ricks, Greenville.
12115	Coffee, Our Standard.	do.	J. B. Britt, Enfield.
11664	Coffee, Carolina Blend.	Hall & Bass, Norfolk, Va.	W. H. Murphy, Kinston.
11670	Coffee, Purity.	do.	S. W. Willis, New Bern.
11680	Coffee, Mother's Best.	Hopkins, J. B., Williamston, N. C.	J. B. Hopkins, Williamston.

COFFEE AND COFFEE SUBSTITUTES.

Laboratory Number.	Coffee— Per Cent.	Chicory— Per Cent.	Remarks and Conclusions.
12122	50.0	50.0	Coffee and chicory.
11696	100.0	00.0	Coffee.
11690	100.0	00.0	do.
12335	100.0	00.0	do.
11746	-----	-----	Coffee, unground; glazed with sugar and gum arabic, and this fact should be prominently stated on label.
11668	33.0	62.0	Chicory and coffee and not coffee and chicory; misbranded; sale illegal.
12484	35.0	65.0	do.
12119	59.0	41.0	Coffee and chicory.
11669	43.0	57.0	Chicory and coffee, and not coffee and chicory; misbranded; sale illegal.
11659	100.0	00.0	Coffee.
11695	100.0	00.0	do.
11678	100.0	00.0	do.
12126	100.0	00.0	do.
12114	100.0	00.0	do.
11654	100.0	00.0	do.
11679	100.0	00.0	do.
12118	100.0	00.0	do.
11667	100.0	00.0	do.
12121	62.0	38.0	Coffee and chicory.
11662	100.0	00.0	Coffee.
11693	100.0	00.0	do.
11691	100.0	00.0	do.
11645	100.0	00.0	do.
12483	100.0	00.0	do.
12481	65.0	35.0	Coffee and chicory.
11692	100.0	00.0	Coffee.
11658	100.0	00.0	do.
11665	100.0	00.0	do.
11671	100.0	00.0	do.
11683	76.0	24.0	Coffee and chicory.
12330	-----	-----	Coffee, chicory, and cereal; misbranded; the words "coffee and vegetable mixture" should be in larger type.
11648	100.0	00.0	Coffee.
11694	100.0	00.0	do.
11655	100.0	00.0	do.
11681	100.0	00.0	do.
12115	100.0	00.0	do.
11664	100.0	00.0	do.
11670	100.0	00.0	do.
11680	100.0	00.0	do.

RESULTS OF THE EXAMINATION OF COF

Laboratory Number.	Material and Brand from Label.	Manufacturer or Wholesaler.	Retail Dealer or Party Who Sent Sample for Analysis.
11745	Coffee and Chicory, Pride of Carthage.	Hurwitz, B., & Bro., Carthage, N. C.	L. H. Chesson, High Point.....
11647	Coffee, Golden Crown.....	Imperial Coffee Co., Richmond, Va.	D. McNair, Hamlet.....
11652	Coffee, Cracker Jack.....	do.....	King Grocery Co., Lumberton..
11682	Coffee, Cook's Choice.....	do.....	W. H. Ricks, Greenville.....
12125	Coffee and Chicory, Hello....	Importers Coffee Co., New Orleans, La.	M. T. Price, Hot Springs.....
11672	Coffee, Niagara.....	Jackson, J. P., Washington, N. C.	J. P. Jackson, Washington.....
11646	Coffee, Capital City.....	Jeffress & Shelton, Richmond, Va.	Southerland & Co., Goldsboro..
12139	Coffee and Chicory, Pride of the South.	Kenny, C. D., Co., Baltimore, Md.	A. L. Stillwell, Charlotte.....
12137	Coffee and Chicory.....	do.....	C. D. Kenny Co., Charlotte....
12136	Chicory.....	do.....	do.....
12135	Coffee and Chicory, The Popular.	do.....	do.....
12134	Coffee and Chicory, Our Sell Fast.	do.....	do.....
12132	Coffee and Chicory, Pride of the South.	do.....	Elliott & Severs, Charlotte....
12475	Coffee.....	Kenny, C. D., Co., Winston-Salem, N. C.	R. S. Fishel, Winston-Salem....
11676	Coffee and Chicory, Special..	Kenny, C. D., Co., Baltimore, Md.	W. A. Mansfield, Edenton.....
12117	Coffee and Chicory, Giant....	Levering Coffee Co., Baltimore, Md.	Herbert Smith, Littleton.....
11653	do.....	do.....	White & Gough, Lumberton....
11650	Coffee, Tourist.....	do.....	G. W. Goodwyn, Laurinburg....
12131	Coffee and Chicory, Largo....	do.....	Dove-Bost Co., Concord.....
12116	Coffee, Druid.....	do.....	C. G. Evans, Weldon.....
12479	Coffee and Chicory, Wundo....	do.....	Webster & Robertson, Madison..
11029	Coffee and Chicory, Rex.....	Mustin, Robertson & Co., Asheville, N. C.	W. A. Davis, Asheville.....
12128	do.....	do.....	W. L. Barnett, Asheville.....
12130	Coffee, Ya Ya.....	do.....	Felmet Bros., Asheville.....
11656	Coffee and Chicory, Clipper..	Merchants Coffee Co., New Orleans, La.	Thomas Grocery Co., Wilmington.
11660	Coffee, Hygeia.....	do.....	Baggett Bros., Wilmington....
12478	Coffee and Chicory, Clipper..	do.....	Angelo Bros., Winston-Salem....
12480	Coffee and Chicory, Winner..	New Orleans Coffee Co., New Orleans, La.	Dodson & Co., Walnut Cove....
12140	North State.....	North State Coffee Co., Charlotte, N. C.	Patterson & Reynolds, Rockingham.
12138	do.....	do.....	C. A. Ross, Charlotte.....
12133	Coffee and Chicory, Jubilee..	do.....	U. G. Hagar, Charlotte.....
12506	North State.....	do.....	W. H. Shelby, Charlotte.....
12520	Coffee, French Breakfast.....	do.....	North State Coffee Co., Charlotte.
11673	Coffee and Chicory, Pender's.	Pender's, Norfolk, Va.	L. C. Mariner, Mackeys Ferry..
11674	Coffee and Chicory, Monticello.	do.....	do.....
11675	Coffee and Chicory, Café Blend.	do.....	do.....
11685	Coffee and Chicory, Gold Ribbon Blend.	Potter-Sloan-O'Donohue Co., New York, N. Y.	Wallace Grocery Co., Smithfield.

FEE AND COFFEE SUBSTITUTES—*Continued.*

Laboratory Number.	Coffee— Per Cent.	Chicory— Per Cent.	Remarks and Conclusions.
11745	57.0	43.0	Coffee and chicory.
11647	100.0	00.0	Coffee.
11652	100.0	00.0	do.
11682	100.0	00.0	do.
12125	58.0	42.0	Coffee and chicory.
11672	100.0	00.0	Coffee.
11646	100.0	00.0	do.
12139	84.0	16.0	Coffee and chicory.
12137	52.0	48.0	do.
12136	00.0	100.0	Chicory.
12135	82.0	18.0	Coffee and chicory.
12134	69.0	31.0	do.
12132	82.0	18.0	do.
12475	100.0	00.0	Coffee.
11676	27.0	73.0	Chicory and coffee, and not coffee and chicory; misbranded; sale illegal.
12117	73.0	27.0	Coffee and chicory.
11653	76.0	24.0	do.
11650	100.0	00.0	Coffee.
12131	50.0	50.0	Coffee and chicory.
12116	100.0	00.0	Coffee.
12479	66.0	34.0	Coffee and chicory.
11029	84.0	16.0	Coffee and chicory; misbranded. It is branded a blend. A blend is a mixture of like substances. Sale illegal.
12128	76.0	24.0	Coffee and chicory.
12130	100.0	00.0	Coffee.
11656	63.0	37.0	Coffee and chicory.
11660	100.0	00.0	Coffee.
12478	57.0	43.0	Coffee and chicory.
12480	65.0	35.0	do.
12140	43.0	57.0	Chicory and coffee. Was sold by retail dealer as coffee; sale as coffee illegal; should be labeled Chicory and Coffee. "North State," a so-called proprietary or distinctive name, is a subterfuge.
12138	50.0	50.0	do.
12133	47.0	53.0	Chicory and coffee, and not coffee and chicory; misbranded; sale illegal.
12506	-----	-----	Chicory and coffee. Was sold by retail dealer as coffee; sale as coffee illegal. Is branded "North State," a so-called proprietary or distinctive name, which is a subterfuge.
12520	100.0	00.0	Coffee.
11673	88.0	12.0	Coffee and chicory.
11674	85.0	15.0	do.
11675	86.0	14.0	do.
11685	60.0	40.0	Compound coffee and chicory; misbranded; sale illegal. It is branded "blend." A blend is a mixture of like substances.

RESULTS OF THE EXAMINATION OF COF

Laboratory Number.	Material and Brand from Label.	Manufacturer or Wholesaler.	Retail Dealer or Party Who Sent Sample for Analysis.
12482	Coffee and Chicory, Elephant	Potter-Sloan-O'Donohue Co., New York, N. Y.	W. W. Whitaker, Elkin.....
11651	Coffee, Votan.....	Reily-Taylor Co., New Orleans, La.	The McKinnon Co., Maxton.....
11684	Coffee and Chicory, Luzianne.....	do.....	G. H. Eason & Bro., Selma.....
12476	Coffee and Chicory, Daily Delight.	do.....	Liberty Mercantile Co., Winston-Salem.
12477	do.....	do.....	W. A. Young, Winston-Salem....
12491	My Kind.....	Sculls, William S., Co., Camden, N. J.	Henderson Grocery Co., Henderson.
12123	Coffee, Reliable.....	Slayden, Flakes & Co., Asheville, N. C.	Peter Haynie, Marshall.....
11649	Coffee and Chicory, Gold Medal.	Southern Coffee Co., New Orleans, La.	Planters Trading Co., Laurinburg.
11663	Coffee and Chicory, Globe.....	do.....	A. W. Kennedy, Jr., LaGrange..
11657	Coffee and Chicory, Red Cross.	do.....	D. H. & B. B. Bryan, Wilmington.
12120	Coffee and Chicory, C. D. M. Creole.	do.....	J. A. B. Faulkner, Henderson..
11112	Coffee, Compound.....	Sprague, Warner & Co., Chicago, Ill.	Efird Bros., Winston-Salem....
11028	Coffee, Compound, Dino.....	do.....	do.....
11666	Coffee, Sutton's Special.....	Sutton, H. I., & Co., Kinston, N. C.	H. I. Sutton, Kinston.....
11677	Coffee, Yoro.....	Williams, R. C., & Co., New York, N. Y.	Pritchard & Jackson, Elizabeth City.
12124	Coffee and Chicory, San Antone.	Woolson Spice Co., Toledo, Ohio...	Tony Ball, Marshall.....
12129	Coffee, Navarre Golden Sun.....	do.....	Cut Rate Grocery Store, Asheville.
12127	Coffee and Chicory, San Antone.	do.....	Dickie, Davis & Dickie, Murphy.

FLOUR.

Flour is the fine, clean, sound product made by bolting wheat meal, and contains not more than 13.5 per cent of moisture, not less than 1.25 per cent of nitrogen, not more than 1 per cent of ash, and not more than 0.5 per cent of fiber.

Very little adulteration is found in flour, practically none except that due to bleaching.

Under the law, a food product is adulterated: if it be mixed, colored, bleached, powdered, coated, or stained in a manner whereby damage or inferiority is concealed, or if it contains any added poisonous or other added deleterious ingredients which may render such article injurious to health.

It has been shown that in the bleaching of flour both classes of adulteration exist. By bleaching, low-grade flours are made to appear like high-grade products, their appearance being improved without improv-

FEE AND COFFEE SUBSTITUTES—*Continued.*

Laboratory Number.	Coffee—Per Cent.	Chicory—Per Cent.	Remarks and Conclusions.
12482	59.0	41.0	Coffee and chicory.
11651	100.0	00.0	Coffee.
11684	80.0	20.0	Coffee and chicory.
12476	56.0	44.0	do.
12477	41.0	59.0	Chicory and coffee, and not coffee and chicory; misbranded; sale illegal.
12491	-----	-----	Compound coffee, chicory, and cereal. Sold under so-called proprietary or distinctive name "My Kind," which is a subterfuge; should be labeled coffee, chicory and cereal.
12123	100.0	00.0	Coffee.
11649	55.0	45.0	Coffee and chicory.
11663	67.0	33.0	do.
11657	51.0	49.0	do.
12120	67.0	33.0	do.
11112	-----	-----	Coffee, cereals, and chicory. Misrepresented by dealer; sold as coffee; sale illegal.
11028	-----	-----	Coffee, chicory, and cereals. Sold as coffee; sale as coffee illegal.
11666	100.0	00.0	Coffee.
11677	100.0	00.0	do.
12124	70.0	30.0	Coffee and chicory.
12129	100.0	00.0	Coffee.
12127	71.0	29.0	Coffee and chicory.

ing their quality, and the bleaching agent, which appears to be a poisonous substance, is left in the flour. The poisonous substance seems to be left in the flour in rather small quantity. The food officials of this Department, like most other food officials, believe that even small amounts of a poisonous substance in human food are objectionable and should not be allowed in same.

The decision of the lower Federal Court, that condemned the bleaching of flour, has been overruled by the Court of Appeals, and the matter is now before the Supreme Court of the United States. It is to be hoped that bleaching will be condemned by the Supreme Court and the practice prohibited entirely.

This Department has had letters recently from a number of the largest and most prominent mills in the country, saying that they have no bleaching machinery in their mills and either never had or have not had since the process was condemned by the court three years ago.

After bleaching was condemned by the Federal Court in the Kansas City case, this Department reaffirmed its former decision, that the sale of bleached flour was illegal; but when the decision of the lower court was overruled by the Court of Appeals, the Department agreed, until

RESULTS OF THE

Laboratory Number.	Material and Brand from Label.	Manufacturer or Wholesaler.	Retail Dealer or Party Who Sent Sample for Analysis.
11792	Flour, Vitality.....	Acme-Evans Co., Indianapolis, Ind.	City Feed Co., Hickory.....
12373	Flour, White Plume.....	do.....	B. D. Mann, Enfield.....
12351	Flour, Columbia.....	do.....	George J. Hales Co., Rocky Mount.
12517	Flour, Allender's Best.....	Allender, J. H., Alesia, Md.	Adams Grain and Provision Co., Charlotte.
12349	Flour, William Tell.....	Ansted-Burke Co., Springfield, Ohio.	George S. Edwards & Co., Rocky Mount.
12493	Flour, White Fawn.....	Antietam Mill Co., Funkstown, Md.	White-Morrison-Flowe Co., Concord.
11640	Flour, Banner.....	Austin-Heaton Co., Durham, N. C.	R. L. Brown, Oxford.....
11908	Flour, Climax.....	do.....	P. A. Reavis Co., Louisburg.....
12313	Flour, Peerless.....	do.....	B. G. Thompson & Son, Goldsboro
12473	Flour, Breakfast Loaf.....	Barker, F. H., High Point, N. C.	C. Dunbar, High Point.....
11799	Flour, Kline's Best.....	Benevola Roller Mills, Benevola, Md.	Davidson & Wolfe, Charlotte.....
11796	Flour, Ladies' Choice.....	Bowman, C. C., Timberville, Va.	Newton Grocery Co., Shelby.....
12374	Flour, Ben Franklin.....	Buffalo Flour Mills, Lewisburg, Pa.	Bellamy & Co., Enfield.....
12324	do.....	do.....	F. G. Paul & Bro., Washington.....
11798	Flour, White Lily.....	Crimora Roller Mills, Crimora, Va.	Davidson & Wolfe, Charlotte.....
12468	Flour, Dan Valley.....	Dan Valley Mills, Danville, Va.	P. H. Johnson, High Point.....
12510	Flour, Just Rite, Self-rising	Dunlop Milling Co., Clarksville, Tenn.	F. D. Barkley & Co., Gastonia.....
12508	Flour, Aunt Rose.....	do.....	do.....
11037	Flour, Gold Coin.....	Eagle Roller Mills Co., New Ulm, Minn.	Rodgers Grocery Co., Asheville.....
12350	Flour, Eldred Patent.....	Eldred Mill Co., Jackson, Mich.	George S. Edwards & Co., Rocky Mount.
11788	Flour, Winner.....	Enid Mill and Elevator Co., Enid, Okla.	Sheeping & Poteat, Morganton...
11789	Flour, Perfection.....	do.....	do.....
12372	Flour, Merry Widow.....	Ford Flour Co., Nashville, Tenn.	F. D. Wood, Enfield.....
11806	Flour, Patapseo.....	Gambrill, C. A., Mig. Co., Baltimore, Md.	Adams Grain and Provision Co., Charlotte.
11758	Flour, Colonial.....	Gateway Milling Co., Kansas City, Mo.	Asheville Grocery Co., Asheville..
12352	Flour, Gooch's.....	Gooch Elevator and Mill Co., Lincoln, Neb.	George J. Hales Co., Rocky Mount.
12316	Flour, Alaska.....	do.....	Armstrong Grocery Co., New Bern.
12485	Flour, 2 X L.....	Greensboro Roller Mills, Greensboro, N. C.	W. L. Kluttz, Salisbury.....
12486	Flour, Grimes' Best.....	Grimes Milling Co., Salisbury, N. C.	do.....
12467	Flour, Our Best.....	Grimes Bros., Lexington, N. C.	P. H. Johnson, High Point.....
11807	Flour, Seal of Ohio.....	Gwinn Milling Co., Columbus, Ohio.	Adams Grain and Provision Co., Charlotte.

the matter is settled by the Supreme Court, not to recommend prosecutions for very slight bleaching.

During the year, 101 samples of flour have been examined, and no adulteration was found.

EXAMINATION OF FLOUR.

Laboratory Number.	Nitrous Nitrogen, Milligrams Per Kilo of Flour.	Remarks and Conclusions.
11792	None.....	Flour; no adulteration found.
12373	do.....	do.
12351	do.....	do.
12517	do.....	do.
12349	do.....	do.
12493	do.....	do.
11640	do.....	do.
11908	do.....	do.
12313	Trace.....	do.
12473	None.....	do.
11799	do.....	do.
11796	do.....	do.
12374	do.....	do.
12324	do.....	do.
11798	do.....	do.
12468	do.....	do.
12510	do.....	do.
12508	do.....	do.
11037	do.....	do.
12350	do.....	do.
11788	Trace.....	do.
11789	None.....	do.
12372	do.....	do.
11806	Trace.....	do.
11758	None.....	do.
12352	Trace.....	do.
12316	None.....	do.
12485	do.....	do.
12486	do.....	do.
12467	do.....	do.
11807	do.....	do.

RESULTS OF THE EXAMINA

Laboratory Number.	Material and Brand from Label.	Manufacturer or Wholesaler.	Retail Dealer or Party Who Sent Sample for Analysis.
12495	Flour, Cream of Wheat.....	Hale, J., & Sons, Lyons, Mich.....	White-Morrison-Flowe Co., Concord.
11025	Flour, Our Sunshine.....	Harrisonburg Milling Co., Harrisonburg, Va.	Farmers Stock Co., Winston-Salem.
12370	Flour, Semalino.....	Hays City Milling and Elevator Co., Hays City, Kan.	.....
12353	Flour, Ben Hur.....	Hennepin Mill Co., Louisville, Ky..	Wilson Wholesale Co., Wilson.....
11500	Flour, Luxury.....	High Point Milling Co., High Point, N. C.	Davidson & Wolfe, Charlotte.....
12472	Flour, White Frost.....	do.....	C. Dunbar, High Point.....
11797	Flour, Virginia's Best.....	Holsinger, P. L., Broadway, Va.....	Newton Grocery Co., Shelby.....
11812	Flour, Water Lily.....	Jefferson Milling Co., Charlestown, W. Va.	Peeters Wholesale Grocery Co., Mooresville.
11808	Flour, Imperial.....	do.....	Adams Grain and Provision Co., Charlotte.
11755	Flour, Wichita's Best.....	Kansas Milling Co., Wichita, Kan.....	Hendersonville Grocery Co., Hendersonville.
11802	do.....	do.....	Charles Moody Co., Charlotte.....
12488	Flour, Cyclone Kicks.....	Kansas City Milling Co., Kansas City, Mo.	Peeler Grain Co., Salisbury.....
12489	Flour, Majestic.....	Knoxville City Mills, Knoxville, Tenn.	Overman & Co., Salisbury.....
11687	Flour.....	Kurfes, C. F., Rockford, N. C.	Joseph Mauney, Rockford.....
12494	Flour, Sky High.....	Landis Milling Co., Landis, N. C.	White-Morrison-Flowe Co., Concord.
11801	Flour, Town Talk.....	Lawrenceburg Roller Mill Co., Lawrenceburg, Ind.	Charles Moody Co., Charlotte.....
12371	Flour, Pride of Richmond.....	J. Lee Koiner, Richmond, Va.....	B. E. Bobbitt & Co., Enfield.....
12348	Flour, King Wheat.....	Louisville Milling Co., Louisville, Ky.	Matthews, Weeks & Co., Rocky Mount.
12487	Flour, Very Best.....	Ludwick Milling Co., Salisbury, N. C.	M. C. Rufty, Salisbury.....
12509	Flour, Bakers' Favorite.....	Middletown Mills, Middletown, Md.	F. D. Barkley & Co., Gastonia.....
12518	Flour, Sensation.....	Model Mills Co., Johnson City, Tenn.	Adams Grain and Provision Co., Charlotte.
11795	do.....	do.....	W. J. Isly & Son, Shelby.....
11754	Flour, Pinnacle.....	Morristown Mills, Morristown, Tenn.	J. O. Houston & Son, Hendersonville.
11794	Flour, Gilt Edge.....	do.....	Shell Grocery Co., Hickory.....
11756	Flour, Self-rising, Ready Mixt.	Mountain City Mill Co., Chattanooga, Tenn.	Hendersonville Grocery Co., Hendersonville.
11793	Flour, Silver Spray.....	Newport Mill Co., Newport, Tenn.	City Feed Co., Hickory.....
11034	Flour, Calla Lily.....	do.....	Byers Bros., Hendersonville.....
11032	Flour, Silver Spray.....	do.....	J. O. Houston & Son, Hendersonville.
12328	Flour, North Star.....	Northwestern Mill and Elevator Co., Toledo, Ohio.	C. W. Stevens Co., Durham.....
12327	do.....	do.....	do.....
12326	Flour, Toledo Pride.....	do.....	do.....
12329	Flour, O. M.....	Orrville Milling Co., Orrville, Ohio.	J. B. Flora & Co., Elizabeth City.
12465	Flour, Piedmont.....	Piedmont Mills, Lynchburg, Va.....	Parker & Clark, High Point.....
11759	Flour, Royal Seal.....	Pillsbury Mills, Minneapolis, Minn.	Asheville Grocery Co., Asheville.....
12354	Flour, Bonnie Doon.....	Port Republic Mill Co., Port Republic, Va.	P. L. Woodard & Co., Wilson.....

TION OF FLOUR—*Continued.*

Laboratory Number.	Nitrous Nitrogen, Milligrams Per Kilo of Flour.	Remarks and Conclusious.
12495	None.....	Flour; no adulteration found.
11025	do.....	do.
12370	do.....	do.
12353	do.....	do.
11800	do.....	do.
12472	do.....	do.
11797	do.....	do.
11812	do.....	do.
11808	do.....	do.
11755	do.....	do.
11802	Trace.....	do.
12488	None.....	do.
12489	Trace.....	do.
11687	None.....	do.
12494	do.....	do.
11801	do.....	do.
12371	do.....	do.
12348	do.....	do.
12487	do.....	do.
12509	do.....	do.
12518	do.....	do.
11795	do.....	Flour, self-rising; phosphate leavening agent; no adulteration found.
11754	do.....	Flour; no adulteration found.
11794	do.....	do.
11756	Trace.....	Flour, self-rising; no adulteration found.
11793	None.....	Flour; no adulteration found.
11034	do.....	do.
11032	do.....	do.
12328	Trace.....	do.
12327	None.....	do.
12326	do.....	do.
12329	do.....	do.
12465	do.....	do.
11759	do.....	do.
12354	do.....	do.

RESULTS OF THE EXAMINA

Laboratory Number.	Material and Brand from Label.	Manufacturer or Wholesaler.	Retail Dealer or Party Who Sent Sample for Analysis.
11033	Flour, Pinnacle.....	Reade, J. S., Morristown, Tenn.....	J. O. Houston & Son, Henderson- ville.
12325	Flour, Gold Band.....	Reliance Milling Co., Vassar, Mich..	F. G. Paul & Bro., Washington...
12515	Flour, Our Pride.....	Rockland Mfg.Co., Weyers Cave, Va	Charlotte Grocery Co., Charlotte.
12312	Flour, Upper Crust.....	Saginaw Milling Co., Saginaw, Mich.	M. J. Best & Sons, Goldsboro....
11811	Flour, Fancy Patent.....	Shenandoah Mills, Mount Jackson, Va.	Peeters Wholesale Grocery Co., Mooreville.
11053	Flour, Roller King.....	Smith, J. Allen, Knoxville, Tenn....	Wofford-Fain Co., Murphy.....
11026	Flour, Economy.....	Sprinkle, J. P., & Son, Lewisville, N. C.	Farmers Stock Co., Winston- Salem.
12514	Flour, Nosoco.....	Statesville Flour Mill Co., States- ville, N. C.	Charlotte Grocery Co., Charlotte.
11757	Flour, Prince.....	do.....	Adams Grain and Provision Co., Asheville.
11790	do.....	do.....	Sheeping & Poteat, Morganton...
11791	Flour, Palace.....	do.....	do.....
12311	Flour, Prince.....	do.....	Deans & Moye, Goldsboro.....
11810	Flour, Stickel's Best.....	Stickell, D. A., & Son, Hagerstown, Md.	W. M. Neal & Co., Mooresville...
11753	Flour, City Talk.....	Twin City Mills, Bristol, Tenn.-Va.	Owenby-Wofford Co., Murphy...
11035	Flour, Diamond.....	do.....	Asheville Grocery Co., Asheville...
11036	Flour, City Talk.....	do.....	do.....
11031	do.....	do.....	J. O. Houston & Son, Henderson- ville.
12314	Flour, Gilt Edge.....	Voigt Milling Co., Rapids, Mich....	L. Harvey & Son Co., Kinston...
11809	Flour, Roller Champion....	Valley City Milling Co., Grand Rapids, Mich.	.....
11027	Flour, Pride of Salem.....	Wachovia Mills, Winston-Salem, N. C.	Farmers Stock Co., Winston- Salem.
11804	Flour, Howard.....	Waggoner-Gates Milling Co., Inde- pendence, Mo.	Adams Grain and Provision Co., Charlotte.
11803	Flour, Gold Medal.....	Washburn-Crosby Milling Co., Louisville, Ky.	Charles Moody Co., Charlotte....
12470	Flour, Purity.....	Watson, W. A., Greensboro, N. C....	S. F. Brown & Co., High Point...
12315	Flour, New Perfection.....	Watson-Higgins Milling Co., Grand Rapids, Mich.	Pugh & Brooks Co., New Bern...
12496	Flour, Jersey Cream.....	Wells-Abbott-Nieman Co., Schuler, Neb.	White-Morrison-Flowe Co., Con- cord.
11052	Flour, Best.....	Wofford-Fain Co., Murphy, N. C....	Wofford-Fain Co., Murphy.....
11805	Flour, Perfection.....	The Williams Bros., Kent, Ohio.....	Adams Grain and Provision Co., Charlotte.
12409	Flour.....	.....	Mrs. R. L. Allen, Waynesville...
11639	Flour, Pillsbury's.....	.....	R. L. Brown, Oxford.....
12533	Flour.....	.....	Statesville Flour Mills, Statesville
12394	do.....	.....	Stokes & Shannonhouse, Char- lotte.
11410	Flour, Lexington Cream.....	.....	S. Williams, Essex.....
11909	Flour.....	.....	O. A. Davis, Pinnacle.....
12108	do.....	.....	G. H. Barnes, Roxobel.....
12255	do.....	.....	Rhyne Roller Mills, Gastonia.....
12574	do.....	.....	J. J. Long & Son, Elmwood.....

TION OF FLOUR—*Continued.*

Laboratory Number.	Nitrous Nitrogen, Milligrams Per Kilo of Flour.	Remarks and Conclusions.
11033	None.....	Flour; no adulteration found.
12325	do.....	do.
12515	do.....	do.
12312	do.....	do.
11811	do.....	do.
11053	do.....	do.
11026	do.....	do.
12514	Trace.....	do.
11757	None.....	do.
11790	do.....	do.
11791	do.....	do.
12311	Trace.....	do.
11810	None.....	do.
11753	do.....	do.
11035	do.....	do.
11036	do.....	do.
11031	do.....	do.
12314	do.....	do.
11809	do.....	do.
11027	do.....	do.
11804	do.....	do.
11803	do.....	do.
12470	Trace.....	do.
12315	None.....	do.
12496	do.....	do.
11052	do.....	do.
11805	do.....	do.
13409	Trace.....	do.
11639	None.....	do.
12533	do.....	do.
12394	Trace.....	do.
11410	.....	do.
11909	None.....	do.
12108	do.....	do.
12255	Trace.....	do.
12574	None.....	do.

HONEY.

STANDARDS FOR HONEY.

Honey is the nectar and saccharine exudations of plants gathered, modified, and stored in the comb by honeybees; is levorotatory, contains not more than 25 per cent of water, not more than 0.25 per cent of ash, and not more than 8 per cent of cane sugar.

RESULTS OF THE EXAMINATION OF

Laboratory Number.	Material and Brand from Label.	Manufacturer or Wholesaler.	Retail Dealer or Party Who Sent Sample for Analysis.
11934	Honey, Schimmel's.....	American Preserving Co., Philadelphia, Pa.	Pure Food Grocery, Washington.
11614	Corn Sirup and Honey.....	Atlas Preserving Co., Baltimore, Md.	L. M. Savage, Greenville.....
11613	do.....	do.....	Spencer & Co., Kinston.....
11612	do.....	do.....	C. D. Croom, Goldsboro.....
11611	do.....	do.....	W. R. Crow, Goldsboro.....
11615	do.....	do.....	Carper Grocery Co., Greenville.....
11616	do.....	do.....	Peeden & Peterson, Smithfield.....
11933	Corn Sirup and Honey, Southern Belle.	do.....	Hardy Hill, Kinston.....
11944	Honey, Bishop's.....	Bishop & Co., San Francisco, Cal.	G. F. Stradley, Asheville.....
11937	Honey.....	Brickschool, J. K., Enfield, N. C.	J. B. Britt, Enfield.....
11941	Honey, Del Monte.....	California Fruit Canning Assn., San Francisco, Cal.	A. & P. Tea Co., Greensboro.....
11942	Honey.....	Dunbar, J. A., High Point, N. C.	J. S. Kenly, High Point.....
11939	do.....	Moore, J. P., Morgan, Ky.	Little Cash Grocery, Durham.....
11936	Honey, Golden Tree.....	New England Maple Sirup Co., Boston, Mass.	W. R. Brothers, Edenton.....
11938	do.....	do.....	J. H. Newsom, Littleton.....
11940	Honey, Toll's Log Cabin.....	Toll Maple Product Co., St. Johnsbury, Vt.	W. T. Sockwell, Greensboro.....
12220	do.....	do.....	C. A. Jones, Winston-Salem.....
11932	Honey, Native.....	do.....	D. McNair, Hamlet.....

ICE-CREAM AND ICE-CREAM SUBSTITUTES.

STANDARDS FOR ICE-CREAM.

Ice-cream is a frozen product made from cream and sugar, with or without a natural flavoring, and contains not less than 10 per cent of milk fat.

Fruit ice-cream is a frozen product made from cream, sugar, and sound, clean, mature fruits, and contains not less than 8 per cent of milk fat.

Nut ice-cream is a frozen product made from cream, sugar, and sound nonrancid nuts, and contains not less than 8 per cent of milk fat.

Many products, such as eggs, gelatine, etc., are used in the manufacture of so-called ice-cream, which is often very palatable, but which is not ice-cream, and if sold as such is a violation of the law.

Eighteen samples of honey and substitutes for same were examined, seven of which were adulterated and misbranded. They were branded "Corn Sirup and Honey," but contained practically no honey, certainly not enough to justify the name, corn sirup and honey. They were misbranded, and their sale was illegal.

HONEY AND HONEY SUBSTITUTES.

Laboratory Number.	Polarization, 20°C., °V. Direct.	Polarization, 20°C., °V. Invert.	Sucrose (Clerget)—Per Cent.	Glucose—Per Cent.	Total Solids—Per Cent.	Water—Per Cent.	Test for Commercial Invert Sugar.	Remarks and Conclusions.
11934	—16.0	—19.8	2.86	0.00	75.9	24.1	Negative...	Honey.
11614	150.0	149.6	0.00	85.37	-----	-----	-----	Corn sirup, slightly flavored with honey; misbranded; sale illegal.
11613	162.0	161.7	0.00	92.17	-----	-----	-----	do.
11612	160.0	160.0	0.00	91.42	-----	-----	-----	do.
11611	160.0	160.0	0.00	91.42	-----	-----	-----	do.
11615	160.0	160.0	0.00	91.42	-----	-----	-----	do.
11616	160.0	160.0	0.00	91.42	-----	-----	-----	do.
11933	154.0	154.0	0.00	88.00	-----	-----	Positive...	do.
11944	—18.0	—22.0	3.01	0.00	-----	-----	Negative...	Honey.
11937	—6.0	—9.9	2.94	0.00	-----	-----	do.....	do.
11941	—14.0	—19.8	4.37	0.00	-----	-----	do.....	do.
11942	—13.0	—15.4	1.80	0.00	75.6	24.4	do.....	do.
11939	—15.0	—18.7	2.79	0.00	-----	-----	do.....	do.
11936	—15.0	—19.8	3.61	0.00	-----	-----	do.....	do.
11938	—12.0	—15.4	2.56	0.00	78.6	21.4	do.....	do.
11940	—15.0	—20.9	4.44	0.00	-----	-----	do.....	do.
12220	—16.0	—22.0	4.53	0.00	-----	-----	do.....	do.
11932	—27.2	—33.0	4.37	0.00	-----	-----	do.....	do.

Realizing that the standard per cent of milk fat is high, and that many dealers would desire to sell and many consumers desire to obtain cheaper products than a standard ice-cream, the Board of Agriculture made a regulation under which any product, not deleterious to health, can be legally sold in the State. The regulation merely provides that if the dealer will make known by placard or label the kind of product offered for sale by him, the Department will not contest the sale.

REGULATION SALE OF ICE-CREAM SUBSTITUTES.

The sale of a product as ice-cream, containing gelatine, eggs, gum tragacanth or other vegetable gums, or the sale of a product as ice-cream which contains less than the required per cent of milk fat will not be contested: *Provided*, the same is labeled and sold as imitation

ice-cream, compound ice-cream, gelatine ice-cream, egg ice-cream, milk ice-cream, or gum ice-cream (as the case may be); or if a placard bearing the following statement—

“Imitation ice-cream is served here.”

“Compound ice-cream is served here.”

“Egg ice-cream is served here.”

“Gelatine ice-cream is served here.”

“Milk ice-cream is served here,” or

“Gum ice-cream is served here,”

(as the case may be) shall be posted in a conspicuous place in the

RESULTS OF THE EXAMINATION OF ICE-

Laboratory Number.	Sold by Retail Dealer as—	Manufacturer or Wholesaler.	Retail Dealer or Party Who Sent Sample for Analysis.
12586	Ice-cream, Vanilla.....	Angelo Bros., Winston-Salem, N. C.	Angelo Bros., Winston-Salem.....
12587	Ice-cream, Chocolate.....	do.....	do.....
12590	Ice-cream, Peach.....	Arctic Ice-cream Co., Greensboro, N. C.	Fordham Drug Store, Greensboro
12591	Ice-cream, Vanilla.....	do.....	Still Drug Co., Greensboro.....
12523	Ice-cream, Gelatine, Vanilla.	Brannon-Hahn Co., Charlotte, N. C.	Brannon-Hahn Co., Charlotte....
12588	Ice-cream, Vanilla.....	Carolina Ice and Cold Storage Co., Winston-Salem, N. C.	Howard Pharmacy, Winston-Salem.
12589	do.....	Hammer, J. A., Greensboro, N. C.	J. A. Hammer, Greensboro.....
12527	do.....	Marmora, Charles, Salisbury, N. C.	Charles Marmora, Salisbury.....
12529	do.....	do.....	Main Street Pharmacy, Salisbury
12592	do.....	do.....	Five Points Drug Co., Durham..

LARD.

1. *Lard* is the rendered fresh fat from hogs in good health at the time of slaughter, is clean, free from rancidity, and contains, necessarily incorporated in the process of rendering, not more than one (1) per cent of substances, other than fatty acids and fat.

2. *Leaf lard* is lard rendered at moderately high temperatures from the internal fat of the abdomen of the hog, excluding that adherent to the intestines, and has an iodine number not greater than sixty (60).

3. *Neutral lard* is lard rendered at low temperatures.

There is no standard for compound lard, it being a mixture or compound of fats, but as found on the market it is usually cotton-seed oil with enough beef stearin (oleostearin) to give it the requisite degree of solidity or consistence and a small amount of real lard. Lard stearin or cotton-seed stearin may be used in place of the beef stearin.

room where any and all persons may see the same when purchasing cream; and *Provided further*, that the statement on the placard is printed in plain black letters, not less than one inch in size, on a white background.

Since this article was originally prepared, the Board of Agriculture has changed the fat standard for ice-cream from 14 per cent fat to 10 per cent fat, and the corrections have been made as above.

In the future the law will be strictly enforced.

CREAM AND ICE-CREAM SUBSTITUTES.

Laboratory Number.	Fat, Milk— Per Cent.	Remarks and Conclusions.
12586	0.70	Not ice-cream, though it was sold as ice-cream; sale illegal.
12587	1.20	do.
12590	5.90	Below standard in milk fat; no sign; sale illegal.
12591	8.00	do.
12523	10.13	Gelatine ice-cream.
12588	3.50	Not ice-cream, though it was sold as ice-cream; no sign; sale illegal.
12589	2.70	do.
12527	11.53	Custard cream.
12529	10.16	Ice-cream.
12592	7.80	Below standard in milk fat; no sign; sale illegal.

Although compound lard is made according to different formulas to meet the requirements of different markets, at different times, the product almost invariably contains more cotton-seed oil than all the other ingredients taken together. There is ordinarily very little real lard in a compound lard.

During the year, 43 samples of lards and compound lards have been examined, 24 of which were adulterated, misbranded, or misrepresented, and were sold in violation of the law. Most of them were properly labeled or branded, and the misrepresentation, the violation of the law, was by the retail dealer, who sold the compound lards as lard. In every case the inspector asked for lard, and in 24 of the 43 samples compound lard was furnished as lard.

The Department does not wish to discriminate against compound lard, for it is a good food product, but it is not lard, and the sale of it as lard is a violation of law.

RESULTS OF THE EXAMINATION OF LARDS,

Laboratory Number.	Material and Brand from Label.	Sold by Retail Dealer as—	Manufacturer or Wholesaler.	Retail Dealer or Party Who Sent Sample for Analysis.
11330	Lard, Armour Shield	Lard	Armour & Co., Richmond, Va.	Hardy Hill, Kinston
11336	do	do	Armour & Co., New Bern, N. C.	J. B. Jones & Son, Beaufort
11334	Lard, with Oleo Added, Burkhardt	do	Burkhardt, H., Packing Co., Dayton, Ohio.	E. A. Cherry, Morehead City
11337	do	do	do	E. B. Hackburn, New Bern
12282	Lard, Compound, Sunny South.	do	Corkrand-Hill Co., Baltimore, Md.	Hogshead & Kerr, Greensboro
11333	Lard, Rose	do	Cleveland Provision Co., Cleveland, Ohio.	J. B. Sawyer, Morehead City
11318	Lard, Rex	do	Cudahy Packing Co., U. S. A.	M. Bon Olsen, Wilmington
11325	Lard, Compound, Kneedit.	do	Edible Products Co., Savannah, Ga.	E. A. Chadwick, Wilmington
12281	Lard, Compound, Snow White.	do	Fairbanks, N. K., Co., Chicago, Ill.	W. O. Smith, Enfield
12285	do	do	Fairbanks, N. K., Co., New Orleans, La.	Mrs. K. G. Gabriel, Greensboro
11317	Lard, Montibello	do	Forbes, W. S., & Co., Richmond, Va.	The McKinnon Co., Maxton
11352	Lard	do	do	Driver & Noel, Selma
11329	Lard, with Oleo Stock.	do	Focke's, William, Sons Co., Dayton, Ohio.	W. H. Murphy, Kinston
11349	Lard, with Oleo Stock, Crown.	do	do	J. B. Hopkins, Williamston
11350	do	do	do	Tarboro Grocery Co., Tarboro
11320	Lard, White Star	do	Hammond, G. H., Co., U. S. A.	Bardin & Jones, Wilmington
11331	Lard, Cotton Seed and Oleo Stearin.	do	Hahman, C., & Sons, Baltimore, Md.	Joe Trosker, Kinston
11332	Lard, Virginia	do	Kingan & Co., Richmond, Va.	Burrell-Strowd, Kinston
11319	Lard	do	do	S. W. Sanders, Wilmington
11351	Lard, Indiana	do	Kingan & Co., Indianapolis, Ind.	E. H. King, Selma
11335	Lard and Oleo Stearin.	do	Kuel, Charles G., Baltimore, Md.	J. B. Morton, Morehead City
11338	Lard, with Oleo Stearin.	do	do	Emanuel Fischer, New Bern
11339	Lard, Butcher's	do	Morris & Co., Chicago, Ill.	W. M. Swanner, Washington
11324	Lard, White Star	do	National Packing Co., U. S. A.	C. E. Scherer, Wilmington
11327	Lard	do	Patrick, F. E., Young Co., Richmond, Va.	Lenoir Supply Co., LaGrange
11328	do	do	do	DeLeon M. Fields, LaGrange
11344	do	do	do	A. T. Gaylord, Plymouth
11322	Lard, Compound, Flake White.	do	Proctor-Gamble Co., Macon, Ga.	Brooklyn Market, Wilmington
12284	do	do	do	S. M. Hill, Greensboro
12283	do	do	do	J. H. Bobbitt, Littleton
12287	do	do	do	J. I. Brown, Waynesville
11345	Lard	do	Roberson, Henry, Williamston, N. C.	W. J. Hodges, Williamston
11342	Lard, Butcher's	do	Schwartz-Schild & Sulzburger Co., Norfolk, Va.	J. S. Privott, Edenton
11340	Lard, with Oleo Stearin, Globe.	do	Shafer, Jacob C., & Co., Baltimore, Md.	Joseph F. Tayloe, Washington
11326	Lard, with Oleo Stearin, Seoco.	do	Southern Cotton Oil Co., Savannah, Ga.	W. H. Hines, Wilmington
11323	do	do	do	C. E. Scherer, Wilmington

COMPOUND LARDS AND LARD SUBSTITUTES.

Laboratory Number.	Halphen Test for Cotton-seed Oil.	Reading Refractometer, 40°C.	Refractive Index.	Iodine Number (Hanus).	Remarks and Conclusions.
11330	Negative...	49.8	1.4592	66.5	Lard.
11336	do.....	50.5	1.4597	73.3	do.
11334	do.....	49.5	1.4590	61.5	Compound lard. Sold by retail dealer as lard; misrepresented; sale as lard illegal.
11337	do.....	50.0	1.4594	69.1	do.
12282	Positive....	58.5	1.4639	100.5	do.
11333	Negative...	50.0	1.4593	66.6	Lard.
11318	do.....	49.7	1.4597	66.0	do.
11325	Positive....	56.0	1.4633	97.1	Compound lard. Misrepresented by dealer; was sold as lard; sale as lard illegal.
12281	do.....	58.0	1.4646	93.9	do.
12285	do.....	57.5	1.4642	90.7	do.
11317	Negative....	49.8	1.4592	65.5	Lard.
11352	do.....	50.5	1.4597	57.7	do.
11329	do.....	49.0	1.4586	59.5	Compound lard. Was sold by dealer as lard; misrepresented; sale as lard illegal.
11349	do.....	49.8	1.4592	61.9	do.
11350	do.....	50.5	1.4597	59.1	do.
11320	do.....	50.7	1.4598	65.9	Lard.
11331	Positive....	55.0	1.4626	91.4	Compound lard. Misrepresented by dealer; sale as lard illegal.
11332	Negative....	50.0	1.4593	62.5	Lard.
11319	do.....	50.5	1.4597	66.7	do.
11351	do.....	50.0	1.4593	65.4	do.
11335	do.....	50.2	1.4595	61.7	Compound lard. Misrepresented; sale as lard illegal.
11338	do.....	50.2	1.4595	64.5	Compound lard. Sold by dealer as lard; misrepresented; sale as lard illegal.
11339	do.....	50.5	1.4797	67.5	Lard.
11324	do.....	52.0	1.4607	70.8	do.
11327	do.....	49.5	1.4590	65.2	do.
11328	do.....	50.0	1.4593	66.8	do.
11344	do.....	50.5	1.4597	65.1	do.
11322	Positive....	58.0	1.4646	96.5	Compound lard. Sold by dealer as lard; misrepresented; sale as lard illegal.
12234	do.....	60.0	1.4659	97.3	do.
12283	do.....	59.0	1.4653	97.3	do.
12287	do.....	58.0	1.4646	90.3	do.
11345	Negative....	52.0	1.4607	69.9	Lard.
11342	do.....	51.0	1.4600	68.8	do.
11340	do.....	52.0	1.4607	67.2	Compound lard. Sold by dealer as lard; misrepresented; sale as lard illegal.
11326	Positive....	56.5	1.4636	98.5	do.
11323	do.....	57.5	1.4642	94.7	do.

RESULTS OF THE EXAMINATION OF LARDS, COM

Laboratory Number.	Material and Brand from Label.	Sold by Retail Dealer as—	Manufacturer or Wholesaler.	Retail Dealer or Party Who Sent Sample for Analysis.
11347	Lard, Cotton-seed Oil and Oleo Stearin, Snowdrift.	Lard...	Southern Cotton Oil Co., Savannah, Ga.	J. B. Hopkins, Williamston....
11348	Lard, Sunny South.	..do....	Streett & Cockran, Baltimore, Md.	do.....
11346	Lard, with Cotton-seed Oil and Oleo Stearin, Diamond.	..do....	do.....	W. J. Hodges, Williamston....
12286	Lard, Compound, Cotton-seed Oil and Oleo Stearin.	..do....	Sulzberger & Sons Co., Norfolk, Va.	John Saba, Salisbury.....
11343	Lard, Laurel Leaf.	..do....	do.....	J. S. Privott, Edenton.....
11341	Lard, with Oleo Stearin, Victory.	..do....	Sucher, Charles, Packing Co., Dayton, Ohio.	Citizens Supply Co., Belhaven.
11321	Lard, Silver Leaf.	..do....	Swift & Co., Wilmington, N. C.	J. S. Westbrook, Wilmington...

LEMON EXTRACTS AND LEMON EXTRACT SUBSTITUTES.

Lemon extract is the flavoring extract prepared from oil of lemon, or from lemon peel, or both, and contains not less than 5 per cent by volume of oil of lemon.

Oil of lemon is the volatile oil obtained from the fresh peel of the lemon.

Terpeneless extract of lemon is the flavoring extract prepared by shaking oil of lemon with dilute alcohol, or by dissolving terpeneless oil of lemon in dilute alcohol, and contains not less than two-tenths (0.2) per cent by weight of citral, derived from oil of lemon.

Compound lemon extract is the flavoring product containing more than 50 per cent of lemon extract with some other flavoring as a substitute for lemon, such as citral, etc.

RESULTS OF THE EXAMINATION OF LEMON

Laboratory Number.	Material and Brand from Label.	Manufacturer or Wholesaler.	Retail Dealer or Party Who Sent Sample for Analysis.
11625	Lemon Extract, Bailey's Standard.	James Bailey & Son, Baltimore, Md.	J. B. Morton, Morehead City...
11637	Lemon Extract, Princess.	Bennett, Sloan & Co., New York, N. Y.	Hedgepeth Bros., Fayetteville..
11630	Lemon Extract.....	Bodeker Drug Co., Richmond, Va.	Anderson, Crawford & Co., Williamston.
11883	do.....	do.....	R. S. Wells, Elm City.....
12246	Lemon Extract, Brame's.	Brame Drug Co., North Wilkesboro, N. C.	W. F. Davis, North Wilkesboro.

POUND LARDS AND LARD SUBSTITUTES—*Continued.*

Laboratory Number.	Hallphen Test for Cotton-seed Oil.	Reading Refractometer, 40°C.	Refractive Index.	Iodine Number (Hanus).	Remarks and Conclusions.
11347	Positive....	57.5	1.4642	93.4	Compound lard. Sold by dealer as lard; misrepresented; sale illegal.
11348	do.....	56.0	1.4633	94.6	do.
11346	do.....	54.5	1.4623	85.2	do.
12286	do.....	57.5	1.4642	92.9	do.
11343	Negative....	51.0	1.4600	67.8	Lard.
11341	do.....	49.5	1.4590	58.1	Compound lard. Sold by dealer as lard; misrepresented; sale as lard illegal.
11321	do.....	50.1	1.4594	64.4	Lard.

Imitation lemon extract is a flavoring product made from citral or other substitutes for lemon oil, and contains little or no lemon oil.

Eighty-one samples were examined, 45 of which proved to be standard lemon extracts, properly branded. The other 36 samples were compound extracts, imitation extracts, or extracts below standard, 20 of which were adulterated or misbranded and were sold in violation of the law.

These substitutes for lemon extract are usually of very little value as flavoring materials, but if properly labeled or branded just what they are, their sale is legal. Consumers would do well, however, to observe the label and demand the real extract, as it is worth far more than the difference in the price between the substitute and the real extract.

See results in table below.

EXTRACTS AND LEMON EXTRACT SUBSTITUTES.

Laboratory Number.	Oil of Lemon by Precipitation—Per Cent by Volume.	Oil of Lemon by Polarization—Per Cent by Volume.	Reading Refractometer on Oil, 15.5°C.	Refractive Index of Oil.	Specific Gravity, 15.6°C.	Alcohol (by Volume)—Per Cent.	Remarks and Conclusions.
11625	5.0	-----	75.0	1.4753	0.8558	77.97	Lemon extract.
11637	5.4	5.6	75.0	1.4753	-----	-----	do.
11630	5.4	5.6	75.0	1.4753	0.8362	83.90	do.
11883	5.4	5.7	75.0	1.4753	0.8367	83.74	do.
12246	0.0	0.0	-----	-----	0.9373	48.54	Imitation lemon extract; misbranded and adulterated; sale illegal.

RESULTS OF THE EXAMINATION OF LEMON EXTRACTS

Laboratory Number.	Material and Brand from Label.	Manufacturer or Wholesaler.	Retail Dealer or Party Who Sent Sample for Analysis.
12036	Lemon Extract, Eclipse.....	Brauer, Charles E., & Co., Richmond, Va.	Dave Henry, Rockingham.....
11619	do.....	do.....	D. J. McDuffie, Laurinburg.....
12245	Extract Lemon, Lockett's.....	Bristol Drug and Gum Co., Bristol, Tenn.-Va.	Atkinson Co., Elkin.....
12032	Terpeneless Extract Lemon...	Burwell-Dunn Co., Charlotte, N. C.	Renfrow, Barrett & Co., Matthews.
12086	Lemon Extract.....	Cabarrus Drug Co., Concord, N. C.	Lippard & Barrier, Concord....
11885	Lemon Extract, Peerless.....	Carr, Owens & Co., Baltimore, Md.	Brasswell, Dawes & Co., Elm City.
11632	Imitation Lemon Extract, Victor.	Clotworthy Chemical Co., Baltimore, Md.	O. O. Boykin, Tarboro.....
11621	Lemon Extract, Mayflower...	Coleburn, A., Co., Philadelphia, Pa.	H. H. Woodse, Wilmington.....
11617	Lemon Extract, Colgate's....	Colgate & Co., New York, N. Y.	J. H. Monger, Sanford.....
11896	Imitation Lemon Flavoring...	Crown Chemical Co., Baltimore, Md.	J. G. Williams, Chapel Hill....
12249	Imitation Lemon, Crown.....	do.....	C. H. Pettigrew, Reidsville....
12079	Lemon Extract, Royal Windsor.	Cumberland Mfg. Co., Nashville, Tenn.	A. M. Grayson, Marion.....
12231	Lemon Extract, Crest.....	Depew, Edward D., & Co., New York, N. Y.	A. P. Grizzard, Winston-Salem..
11620	Lemon Extract, Helmet.....	Durkee, E. R., & Co., New York, N. Y.	H. H. Woodse, Wilmington.....
12083	Extract Lemon, Eddy's Special.	Eddy & Eddy Mfg. Co., St. Louis, Mo.	J. M. Washburn, Shelby.....
11882	Lemon Extract, Household...	Gilbert Bros. & Co., Baltimore, Md.	J. L. Bailey, Elm City.....
11897	do.....	do.....	R. A. Eubanks, Chapel Hill....
11884	do.....	do.....	A. C. Dixon, Elm City.....
11633	Lemon Extract.....	Goldsboro Drug Co., Goldsboro, N. C.	M. C. Forbes, Wilson.....
11623	do.....	Gill, James G., Co., Norfolk, Va.	A. T. Gaylord & Co., Plymouth
12237	Lemon Extract, Harris'.....	Harris Co., New York, N. Y.	Efird Bros., Winston-Salem....
11895	Lemon Extract, White Cap...	Heekin Spice Co., Cincinnati, Ohio.	Holder & Cheek, East Durham..
11625	do.....	do.....	Morgan & Parker, Elizabeth City.
12241	Lemon Extract, Hite's.....	S. P. Hite Co., Roanoke, Va.	W. W. Thomas, Mount Airy....
12088	Extract Lemon.....	Hornets' Nest Liniment Co., Charlotte, N. C.	Sidney Swain, Charlotte.....
12078	Terpeneless Extract Lemon...	Howard Drug Co., Baltimore, Md.	J. C. Gemayel, Newton.....
12087	Extract Lemon, Jackson's.....	Jackson, A. B., & Co., New York, N. Y.	J. F. Jamison & Co., Charlotte.
11618	Terpeneless Lemon Extract, Eagle.	Kent Drug Co., Baltimore, Md.	W. T. Buchanan, Sanford.....
11631	Terpeneless Lemon Extract...	do.....	J. E. Williams, Greenville....
11636	Lemon Extract.....	King, W. H., Drug Co., Raleigh, N. C.	Wilson & Co., Fayetteville....
12098	Lemon Extract, Nabob.....	Leggett, Francis H., & Co., New York, N. Y.	W. L. London, Pittsboro.....
12097	Lemon Extract.....	do.....	do.....
12081	Lemon Extract, Terpeneless...	Lewis-Bear Co., Montgomery, Ala.	T. I. Hughes, Bryson City....

AND LEMON EXTRACT SUBSTITUTES—*Continued.*

Laboratory Number.	Oil of Lemon by Precipitation—Per Cent by Volume.	Oil of Lemon by Polarization—Per Cent by Volume.	Reading Refractometer on Oil, 15.5°C.	Refractive Index of Oil.	Specific Gravity, 15.6°C.	Alcohol (by Volume)—Per Cent.	Remarks and Conclusions.
12096	5.4	5.9	76.5	1.4762	0.8535	78.38	Lemon extract.
11619	6.1	6.2	75.0	1.4753	0.8513	78.31	do.
12245	5.0	-----	74.4	1.4750	0.8276	86.87	do.
12092	0.0	0.0	-----	-----	0.8664	78.96	Imitation or terpeneless extract of lemon.
12086	1.7	1.5	76.5	1.4762	0.8910	67.76	Imitation lemon extract; misbranded. Per cent of alcohol less than stated on label; sale illegal.
11885	-----	5.0	75.0	1.4753	0.8382	83.65	Lemon extract.
11632	0.0	0.0	-----	-----	0.9390	47.62	Imitation lemon flavoring.
11621	5.8	5.9	75.0	1.4753	-----	-----	Lemon extract.
11617	7.8	7.8	75.0	1.4753	0.8223	85.59	do.
11896	0.0	0.0	-----	-----	0.9614	33.50	Imitation lemon extract.
12249	0.0	0.0	-----	-----	0.9617	26.37	do.
12079	5.0	5.3	76.5	1.4762	0.8343	84.87	Lemon extract.
12231	4.6	4.7	74.4	1.4750	0.8234	88.39	Lemon extract, below standard; misbranded; sale illegal.
11620	5.0	5.3	75.0	1.4753	0.8226	88.01	Lemon extract.
12083	5.8	6.0	76.5	1.4762	0.8536	77.74	do.
11882	4.8	5.0	75.0	1.4753	0.8510	79.60	do.
11897	4.8	5.0	75.0	1.4753	0.8504	79.80	do.
11884	5.4	5.6	75.0	1.4753	0.8498	79.60	do.
11633	4.8	5.0	75.0	1.4753	0.8223	88.41	do.
11629	5.2	5.6	75.0	1.4753	0.8387	82.95	do.
12237	0.0	0.0	-----	-----	0.9922	5.55	Imitation lemon extract; misbranded; sale illegal.
11895	5.0	5.0	75.0	1.4753	0.8451	81.54	Lemon extract.
11628	5.2	5.6	75.0	1.4753	0.8427	81.70	do.
12241	5.4	5.6	74.4	1.4750	0.8334	84.57	do.
12088	1.7	1.5	76.5	1.4762	0.8933	67.06	Imitation lemon extract; misbranded; sale illegal.
12078	0.0	-----	-----	-----	0.9734	22.73	Imitation or terpeneless extract of lemon, containing sugar.
12087	0.0	0.0	-----	-----	0.9217	56.21	Imitation lemon extract; misbranded; sale illegal.
11618	0.0	0.0	-----	-----	0.9457	43.75	Imitation or terpeneless extract of lemon; misbranded. Claims 3% oil lemon; sale illegal.
11631	0.4	0.6	-----	-----	0.9424	45.21	Imitation or terpeneless extract of lemon; misbranded. Claims 5% lemon oil; sale illegal.
11636	5.0	5.2	75.0	1.4753	0.8240	87.71	Lemon extract.
12098	6.2	6.4	76.5	1.4762	0.8351	83.24	do.
12097	2.6	2.5	80.0	1.4783	0.8806	-----	Lemon extract, below standard; misbranded; sale illegal.
12081	-----	-----	-----	-----	0.9105	61.19	Imitation or terpeneless extract of lemon.

RESULTS OF THE EXAMINATION OF LEMON EXTRACTS

Laboratory Number.	Material and Brand from Label.	Manufacturer or Wholesaler.	Retail Dealer or Party Who Sent Sample for Analysis.
12232	Lemon Extract, Bee.....	McCormick & Co., Baltimore, Md.	A. P. Grizzard, Winston-Salem.
11626	Lemon Substitute.....	Miller Mfg. Co., New York, N. Y.	E. B. Hackburn, New Bern....
11627	Terpeneless Lemon Extract, Gold Arrow.	Newton Tea and Spice Co., Cincinnati, Ohio.	J. P. Jackson, Washington.....
12073	Lemon Extract, Red Seal.....	do.....	G. W. Whittington & Co., Greensboro.
12093	Terpeneless Lemon Extract.....	do.....	W. L. McCall, Matthews.....
11638	Lemon Extract.....	do.....	Pure Food Grocery, Washington
12239	Lemon Extract, N. P. D.....	Norman-Perry Drug Co., Winston-Salem, N. C.	Madison Grocery Co., Madison..
12075	do.....	do.....	T. J. Steed, High Point.....
12234	do.....	do.....	Angell & Mendenhall, Winston-Salem.
12247	do.....	do.....	Merchants Wholesale Grocery Co., Mocksville.
11886	Lemon Extract, Café.....	Oberndorfen Co., Norfolk, Va.....	L. F. Day, Oxford.....
11622	Lemon Extract.....	Owens & Minor Drug Co., Richmond, Va.	B. F. Powell, Clinton.....
11634	do.....	Parke, L. H., & Co., Philadelphia, Pa.	J. W. Riley, Wilson.....
12082	Lemon Extract, Dr. Price's...	Price Flavoring Extract Co., Chicago, Ill.	Patrick McIntyre, Asheville....
11894	Lemon Extract, Votan.....	Reily-Taylor Co., New Orleans, La.	Barbee & Elliot, Durham.....
12244	Lemon Extract, Sanders' Cream of the Fruit.	Royal Remedy and Extract Co., Dayton, Ohio.	Atkinson Co., Elkin.....
12236	Lemon Extract, Best by Test.	Sampson Medicine Co., Winston-Salem, N. C.	C. H. Lloyd, Winston-Salem...
12094	do.....	do.....	Hill & Son, Albemarle.....
12235	do.....	do.....	J. J. Evans, Winston-Salem...
12238	do.....	do.....	Meador Supply Co., Madison...
12077	do.....	do.....	L. C. Bickett & Bro., Newton...
12230	do.....	do.....	C. E. Knouse, Winston-Salem...
12229	do.....	do.....	Swain & Swain, Winston-Salem
12248	do.....	do.....	J. T. Angell, Mocksville.....
12085	Lemon Extract, Scott's.....	Scott, John M., & Co., Charlotte, N. C.	Kiser & Mauney, Kings Mountain.
12089	Essence Lemon.....	do.....	E. L. Riles, Charlotte.....
12030	Lemon Flavor.....	Smith, T. C., Asheville, N. C.....	L. J. Moody & Co., Bryson City
11624	Lemon Extract, Terpeneless, Gold Seal.	Suffolk Drug Co., Suffolk, Va.....	S. T. Harrell & Son, Morehead City.
12242	Extract Lemon.....	Surry Drug Co., Elkin, N. C.....	Windsor & Newman, Elkin.....
11893	Extract Lemon, Van Duzer's	Van Duzer Extract Co., New York, N. Y.	Patterson Bros. & Co., Durham
11888	Lemon Extract, Our Seal.....	Vaughn-Crutchfield Co., Winston-Salem, N. C.	Evans Bros., Henderson.....
12228	do.....	do.....	Long Bros., Waughtown.....
11887	do.....	do.....	L. F. Day, Oxford.....
12074	Lemon Extract, Eagle.....	Webb Mfg. Co., Nashville, Tenn....	A. L. Younts Grocery Co., Greensboro.

AND LEMON EXTRACT SUBSTITUTES—*Continued.*

Laboratory Number.	Oil of Lemon by Precipitation—Per Cent by Volume.	Oil of Lemon by Polarization—Per Cent by Volume.	Reading Refractometer on Oil, 15.5°C.	Refractive Index of Oil.	Specific Gravity, 15.6°C.	Alcohol (by Volume)—Per Cent.	Remarks and Conclusions.
12232	7.0	7.2	74.4	1.4750	0.8481	78.33	Lemon extract.
11626	0.5	0.6	75.0	1.4753	0.9135	59.22	Imitation lemon extract.
11627	0.3	0.3	75.0	1.4753	0.9223	55.58	Imitation or terpeneless lemon extract.
12073	-----	5.9	76.5	1.4762	0.8321	85.12	Lemon extract.
12093	0.3	-----	80.0	1.4783	0.9210	56.19	Imitation or terpeneless lemon extract.
11638	5.1	5.3	75.0	1.4753	0.8338	84.75	Lemon extract.
12239	4.8	5.0	74.4	1.4750	0.8630	75.19	do.
12075	3.6	3.7	76.5	1.4762	0.8663	75.30	Lemon extract, below standard; misbranded; sale illegal.
12234	4.2	4.4	74.4	1.4750	0.8581	77.76	do.
12247	4.8	5.0	74.4	1.4750	0.8555	78.04	Lemon extract.
11886	-----	5.6	76.0	1.4769	0.8276	86.68	do.
11622	5.0	5.1	75.0	1.4753	0.8430	82.14	do.
11634	5.8	6.0	75.0	1.4753	0.8206	87.82	do.
12082	6.2	6.0	76.5	1.4762	0.8413	81.56	do.
11894	4.8	5.0	75.0	1.4753	0.8263	87.24	do.
12244	5.2	5.3	74.4	1.4750	0.8475	80.43	do.
12236	0.8	0.9	74.4	1.4750	0.9024	63.90	Imitation lemon extract; misbranded; sale illegal.
12094	3.2	3.2	76.5	1.4762	0.8537	80.51	Lemon extract, below standard; misbranded; sale illegal.
12235	3.8	3.8	74.4	1.4750	0.8650	75.70	do.
12238	5.0	5.0	74.4	1.4750	0.8606	76.12	Lemon extract.
12077	1.5	1.5	76.5	1.4762	0.8970	65.57	Imitation lemon extract with conflicting statements on bottle and carton; misbranded; sale illegal.
12230	3.6	3.8	74.4	1.4750	0.8655	75.51	Lemon extract, below standard; misbranded; sale illegal.
12229	3.6	3.4	74.4	1.4750	0.8620	77.00	do.
12248	4.7	4.7	74.4	1.4750	0.8538	78.97	do.
12085	5.2	5.4	76.5	1.4762	0.8490	80.00	Lemon extract.
12089	5.0	5.3	76.5	1.4762	0.8552	78.14	do.
12080	5.4	5.6	76.5	1.4762	0.8191	88.61	do.
11624	0.0	0.0	-----	-----	0.9302	52.20	Imitation or terpeneless extract of lemon.
12242	0.4	0.6	-----	-----	0.9301	51.65	Imitation lemon extract; misbranded; sale illegal.
11893	8.0	8.4	75.0	1.4753	0.8433	79.15	Lemon extract.
11888	-----	5.9	76.0	1.4759	0.8221	88.32	do.
12228	3.7	3.8	77.4	1.4750	0.8717	73.25	Lemon extract, below standard; misbranded; sale illegal.
11887	-----	5.9	76.0	1.4759	0.8234	87.60	Lemon extract.
12074	0.8	0.9	76.5	1.4762	0.9054	62.61	Imitation lemon extract; misbranded; sale illegal.

RESULTS OF THE EXAMINATION OF LEMON EXTRACTS

Laboratory Number.	Material and Brand from Label.	Manufacturer or Wholesaler.	Retail Dealer or Party Who Sent Sample for Analysis.
12030	Extract Lemon, Webb's.....	Webb Mfg. Co., Nashville, Tenn....	C. D. Kenny Co., Charlotte....
12034	Lemon Extract, Hoyt's.....	do.....	Major Hopper, Shelby.....
12091	Imitation Lemon Extract, Anchor.	do.....	C. D. Kenny Co., Charlotte....
12076	Lemon Extract, Pilot.....	Winston Drug Co., Winston-Salem, N. C.	Pickett Bros., Lexington.....
12243	do.....	do.....	Atkinson Co., Elkin.....
12095	do.....	do.....	J. A. Dobbs, Lilesville.....
12233	do.....	do.....	G. L. Sprouse, Winston-Salem..
12240	do.....	do.....	Madison Grocery Co., Madison..
11635	Lemon Extract, We-Li-Ka....	We-Li-Ka Mfg. Co., Memphis, Tenn.	J. F. Powers & Son, Fayetteville

MAPLE SIRUP AND MAPLE SIRUP SUBSTITUTES.

Sirup is the sound product made by purifying and evaporating the juice of a sugar-producing plant without removing any of the sugar.

Maple sirup is sirup made by the evaporation of maple sap or by the solution of maple concrete.

The principal adulteration found in maple sirup is the addition of sugar sirup, cane sirup, or refiner's sirup, the maple sirup present being depended on to flavor the whole, though the maple flavor is sometimes reinforced by the addition of an imitation flavor. Formerly they were adulterated with glucose and imitation flavors. The presence of glucose

RESULTS OF THE EXAMINATION OF MAPLE

Laboratory Number.	Material and Brand from Label.	Manufacturer or Wholesaler.	Retail Dealer or Party Who Sent Sample for Analysis.
12267	Cane and Maple Sirup, Schimmel's.	American Preserving Co., Phila- delphia, Pa.	L. A. Andrews, Greensboro....
12259	Cane and Maple Sirup, Hud- son.	Austin, Nichols & Co., New York, N. Y.	C. A. Clawson, Beaufort.....
11294	Cane and Maple Sirup, Mount Mansfield.	Bay State Maple Sirup Co., Bos- ton, Mass.	D. M. Moore & Son, Burlington
12272	do.....	do.....	do.....
12262	Sugar Sirup Compound, Sugar Hill.	do.....	W. F. Coppedge, Halifax.....
11177	Maple Sirup.....	Blue Ridge Packing Co., New York, N. Y.	S. W. Sanders, Wilmington....
12265	Maple Sirup, Pride of Ohio...	Crane, Clarence A., Warren, Ohio...	L. Thomas, Oxford.....
12261	Merrimac Table Sirup.....	Four Company, The, Norfolk, Va....	W. F. Coppedge, Halifax.....

AND LEMON EXTRACT SUBSTITUTES—*Continued.*

Laboratory Number.	Oil of Lemon by Precipitation—Per Cent by Volume.	Oil of Lemon by Polarization—Per Cent by Volume.	Reading Refractometer on Oil, 15.5°C.	Refractive Index of Oil.	Specific Gravity, 15.6°C.	Alcohol (by Volume)—Per Cent.	Remarks and Conclusions.
12090	5.0	5.3	76.5	1.4762	0.8436	82.06	Lemon extract.
12084	4.8	5.1	76.5	1.4762	0.8441	81.77	do.
12091	0.0	0.0	-----	-----	0.9784	14.13	Imitation lemon extract.
12076	-----	5.3	76.5	1.4762	0.8356	84.49	Lemon extract.
12243	6.1	6.3	74.4	1.4750	0.8640	73.38	do.
12095	3.8	3.7	76.5	1.4762	0.8448	82.84	Lemon extract, below standard; misbranded; sale illegal.
12233	4.4	4.4	74.4	1.4750	0.8672	74.22	do.
12240	0.0	0.0	-----	-----	0.9309	51.82	Imitation lemon extract; adulterated and misbranded; sale illegal.
11635	5.9	5.7	75.0	1.4753	0.8347	83.88	Lemon extract.

being detected with greater ease than the cane sirup, its use has largely been discontinued and the cane sirup used instead.

Under this head, 18 samples were examined, 6 of which were misbranded or misrepresented by the dealer; 3 were straight maple sirups, and the others were mixtures of cane sirup and maple sirup, but were properly branded and sold as such.

The manufacturers of these products often use labels that, while not in open violation of the law, are easily misleading to the unsuspecting consumer. Such labels are regarded as misbranded. A label must tell the truth, the whole truth, and nothing but the truth. See table below.

SIRUPS AND COMPOUND MAPLE SIRUPS.

Laboratory Number.	Total Solids—Per Cent.	Total Ash—Per Cent.	Insoluble Ash—Per Cent.	Soluble Ash—Per Cent.	Polarization, Direct, 20°C.	Polarization, Invert, 20°C.	Sucrose (Clerget)—Per Cent.	Lead Number.	Remarks and Conclusions.
12267	68.02	0.18	0.08	0.10	60.0	—21.5	61.43	0.33	Cane sirup, containing maple sirup.
12259	66.42	0.05	0.00	0.05	58.0	—21.5	59.92	0.08	Cane sirup, maple flavor; misbranded; sale illegal.
11294	68.02	0.12	0.04	0.05	59.0	—22.0	61.05	0.11	do.
12272	68.32	0.15	0.03	0.12	54.0	—18.7	54.80	0.11	do.
12262	66.92	0.42	0.03	0.39	63.0	—20.9	63.24	0.60	Cane and maple sirup.
11177	62.92	0.22	0.07	0.15	14.0	8.8	-----	0.19	Compound sirup; misbranded; sale illegal.
12265	65.57	0.65	0.22	0.43	52.0	—20.4	54.57	1.97	Maple sirup.
12261	73.37	0.11	0.08	0.03	103.0	39.6	47.79	0.11	Compound sirup; contains 31.5 per cent glucose; misbranded; sale illegal.

RESULTS OF THE EXAMINATION OF MAPLE

Laboratory Number.	Material and Brand from Label.	Manufacturer or Wholesaler.	Retail Dealer or Party Who Sent Sample for Analysis.
12263	Table Sirup, Our Pride.....	Gast, Cross & Co., Louisville, Ky...	Sizemore Bros., Oxford.....
11980	Sugar Sirup, Maple Flavor, Valley Farm.	Hyman Pickle Co., Louisville, Ky..	J. P. Beaty & Son, Charlotte...
11125	Cane and Maple Sirup, Nabob.	Leggett, Francis H., & Co., New York, N. Y.	Sanford Supply Co., Sanford...
12264	Cane and Maple Sirup, Vermont.	Philadelphia Pickling Co., Phila- delphia, Pa.	L. Thomas, Oxford.....
12269	Maple Sirup, Bunny.....	Seudder Sirup Co., Chicago, Ill....	J. F. Sims, Asheville.....
11196	Cane and Maple Sirup, Seudder's.	do.....	Willis Grocery Co., New Bern..
12260	Maple Sirup, Crane's.....	Seudder-Crane Co., Warren, Ohio..	D. Lichenstein, Tarboro.....
12266	Sugar and Maple Sirup, St. Croix.	Sprague, Warner & Co., Chicago, Ill.	Patterson Bros. Co., Durham...
12270	do.....	do.....	Pure Food Store, Charlotte....
12268	Cane and Maple Sirup, Toll's Great Mountain.	The Toll Maple Product Co., St. Johnsbury, Vt.	W. H. Moffitt, Lexington.....

MILK AND CREAM.

Milk is the fresh, clean, lacteal secretion obtained by the complete milking of one or more healthy cows properly fed and kept, excluding that obtained within fifteen days before and ten days after calving, and contains not less than eight and one-half (8.5) per cent of solids not fat, and not less than three and one-quarter (3.25) per cent of milk fat.

Blended milk is milk modified in its composition so as to have a definite and stated percentage of one or more of its constituents.

RESULTS OF THE EXAMINA

Laboratory Number.	Material and Brand from Label.	Manufacturer or Wholesaler.	Retail Dealer or Party Who Sent Sample for Analysis.
12521	Cream.....	A. and M. College, West Raleigh, N. C.	J. C. Brantley, Raleigh.....
11641	Milk.....	.....	H. M. Finch, Rocky Mount.....
11907	do.....	.....	T. H. Hornaday, Liberty.....
11022	Milk, Butter.....	.....	Dr. J. F. Park, Winston-Salem...
11686	Cream.....	.....	L. S. Richey, Newton.....
11925	do.....	.....	Shelby Creamery Co., Shelby...
12649	Milk.....	.....	M. Shields, Enfield.....

SIRUPS AND COMPOUND MAPLE SIRUPS—Continued.

Laboratory Number.	Total Solids—Per Cent.	Total Ash—Per Cent.	Insoluble Ash—Per Cent.	Soluble Ash—Per Cent.	Polarization, Direct, 20°C. °V.	Polarization, Invert, 20°C. °V.	Sucrose (Clerget)—Per Cent.	Lead Number.	Remarks and Conclusions.
12263	66.32	0.48	0.10	0.38	53.0	—19.8	54.87	0.08	Cane sirup, maple flavor.
11980	66.32	0.20	0.08	0.12	44.0	—20.9	48.92	0.13	Sugar sirup, maple flavor.
11125	64.82	0.16	0.06	0.10	51.0	—19.8	53.36	0.49	Cane and maple sirup.
12264	73.12	0.93	0.18	0.75	103.0	69.3	25.40	1.39	Compound corn and maple sirup; contains 44.3 per cent glucose; misbranded; sale illegal.
12269	68.32	0.57	0.19	0.38	56.5	—22.0	59.17	1.22	Maple sirup.
11196	65.57	0.12	0.06	0.06	60.5	—20.9	68.89	-----	Cane sirup, containing about 25 per cent of maple sirup; hardly enough maple sirup to justify the label "cane and maple sirup."
12260	66.32	0.50	0.23	0.27	50.0	—22.0	54.27	1.38	Maple sirup.
12266	66.92	0.22	0.08	0.14	60.0	—20.9	60.98	0.30	Sugar sirup, containing maple sirup.
12270	66.32	0.24	0.09	0.15	60.0	—20.9	60.98	0.31	do.
12268	66.32	0.12	0.05	0.07	64.5	—20.9	64.30	0.45	Cane sirup, containing probably 25 per cent maple sirup; hardly enough to justify label "cane and maple sirup."

Skim-milk is milk from which a part or all of the cream has been removed, and contains not less than nine and one-quarter (9.25) per cent of milk solids.

Cream is that portion of milk, rich in milk fat, which rises to the surface of milk on standing, or is separated from it by centrifugal force, is fresh and clean, and contains not less than eighteen (18) per cent of milk fat.

Only 7 samples under this head were examined, all of which were sent to the Department for analysis and were all standard products.

TION OF MILK AND CREAM.

Laboratory Number.	Fat, Butter—Per Cent.	Reading Refractometer on Fat, 40°C.	Refractive Index of Fat.	Preservatives.	Remarks and Conclusions.
12521	28.0	-----	-----	-----	Cream.
11641	4.4	45.0	1.4558	None	Milk.
11907	5.8	-----	-----	-----	do.
11022	-----	-----	-----	None	do.
11686	27.4	43.0	1.4545	-----	Cream.
11925	-----	40.0	1.4524	-----	Cream, containing no fat other than milk fat.
12649	6.0	-----	-----	-----	Milk.

MISCELLANEOUS SAMPLES.

Under this head 10 samples sent to the Department for analyses were examined, as follows: 1 imitation phosphate, 2 baking sodas, 2 baking powders, 3 whiskies, and 2 canned vegetables.

The results of the examination were sent to the party who sent sample for analysis.

MOLASSES AND SIRUPS.

Sirup is the sound product made by purifying and evaporating the juice of a sugar-producing plant without removing any of the sugar.

Sugar-cane sirup is sirup made by the evaporation of the juice of the sugar-cane, or by the solution of sugar-cane concrete.

Sorghum sirup is sirup made by the evaporation of sorghum juice or by the solution of sorghum concrete.

Refiners' sirup is the residual liquid product obtained in the process of refining raw sugar.

Molasses is the product after separating the sugar from massecuite, melada, mush sugar, or concrete.

Molasses or sirup that is compounded or mixed with glucose or any other substance to cheapen or lower its quality must be labeled so as to plainly indicate what the product is. That is, a mixture of molasses and corn sirup, with the molasses in excess, would be properly labeled molasses and corn sirup. If the corn sirup is in excess, it should be labeled corn sirup and molasses. Corn sirup containing a small amount of cane sirup should be labeled so as to plainly indicate the facts in the case. A label, "Corn and Cane Sirup," is not, in our judgment, a proper

RESULTS OF THE EXAMINATION OF MOLASSES

Laboratory Number.	Material and Brand from Label.	Sold by Retail Dealer as—	Manufacturer or Wholesaler.	Retail Dealer or Party Who Sent Sample for Analysis.
11311	Molasses, A. & P.	Molasses	A. & P. Tea Co., Jersey City, N. J.	A. & P. Tea Co., Greensboro
11174	Cane and Corn Comp., Alaga.	Cane and Corn Sirup.	Alabama-Georgia Sirup Co., Montgomery, Ala.	Peoples Supply Co., Wilmington.
11204	Molasses, Ponce	Molasses	Alexander, M. H., Co., Cincinnati, Ohio.	A. J. Ward, Edenton.
11953	Country Sirup and Sirup, Corn Sirup, Tennessee.		American Commission Co., Greensboro, N. C.	J. T. Lambert, Greensboro.
11967	Sirup, Crystal Flake.	do	American Sirup and Preserving Co., Nashville, Tenn.	J. W. Nelson, Marshall.
11985	Corn Sirup and Molasses, Tennessee.	Molasses	do	J. T. Pinkston & Son, Wadesboro.
11986	do	do	do	M. F. Little & Co., Albemarle.
11987	do	do	do	W. C. Jones, Lilesville.

label for a product composed largely of corn sirup containing a small amount of cane sirup. A product so labeled should contain a material amount of the cane sirup.

Refiners' sirup is not cane sirup, and cannot be legally sold as such. Neither would a mixture of corn sirup and refiners' sirup be properly labeled if labeled corn and cane sirup. It should be labeled corn and refiners' sirup or compound sirup.

The table below contains the results of the examination of 232 samples of these products, 62 of which were adulterated, misbranded, or misrepresented by the retail dealer, and were sold in violation of the law. These products seem to be much adulterated and misbranded. Many manufacturers are disposed to hide the truth in regard to the real character of compound sirups, while many others label them plainly what they are, as will be seen by reference to the table below; but the greatest violation in the sale of this class of products is committed by the retail dealers. They buy these products in bulk, labeled "compound," as they are, and then proceed to sell them as real sirup. Many of them are labeled corn and cane sirup, which label would indicate about equal parts of each, when as a fact it would be corn sirup or glucose flavored with cane sirup. One so labeled would be misbranded.

By reference to the table it will be seen that some of the compound products were labeled "Table Sirup." A product labeled "Table Sirup" that contains corn sirup or any other product except one made from the juice of a sugar-producing plant, would be misbranded.

Retail dealers are cautioned that compounds or mixtures of refiners' sirup and corn sirup cannot be legally sold as sirup. They must be sold as compound sirup, refiners' sirup, or corn sirup, as the case may be.

AND SIRUPS, AND SUBSTITUTES FOR SAME.

Laboratory Number.	Polarization, Direct, 20°C. °V.	Polarization, Invert, 20°C. °V.	Sucrose (Clerget)—Per Cent.	Glucose, Commercial (Leach's Formula)—Per Cent.	Solid Matter—Per Cent.	Remarks and Conclusions.
11311	33.0	-13.2	34.82	0.00	73.34	Molasses.
11174	94.0	60.5	25.25	29.28	71.00	Compound sirup.
11204	20.0	-17.6	28.34	0.00	77.00	Molasses.
11953	124.0	110.0	10.55	64.82	75.20	Compound sirup. Was sold by retail dealer as sirup; misrepresented; sale illegal.
11967	145.0	145.0	0.00	82.85	75.10	Corn sirup, and not sirup as branded; misbranded; sale illegal.
11985	117.0	104.5	9.42	61.47	76.00	Compound molasses. Was sold by retail dealer as molasses; misrepresented; sale illegal.
11986	116.0	103.4	9.49	60.85	77.20	do.
11987	114.0	103.4	7.99	60.57	-----	do.

RESULTS OF THE EXAMINATION OF MOLASSES AND

Laboratory Number.	Material and Brand from Label.	Sold by Retail Dealer as—	Manufacturer or Wholesaler.	Retail Dealer or Party Who Sent Sample for Analysis.
11988	Corn Sirup and Sorghum, Tennessee.	Sorghum Sirup.	American Sirup and Preserving Co., Nashville, Tenn.	B. M. Tyson, Lilesville.....
11315	Sirup, Our Duchess	Compound Sirup.	Antrim, C. W., & Son, Richmond, Va.	Fairmont Grocery Co., Elkin.
11175	-----	Molasses.....	do.....	Wilmington Grocery Co., Wilmington.
11766	-----	Sirup.....	do.....	Curtis-Pearson Co., Enfield.
11770	-----	do.....	do.....	L. J. Moore, Weldon.....
11776	Sirup, Cyclone.....	do.....	do.....	Breedlove & McFarland, Oxford.
11181	Molasses, Mayfield.	Molasses.....	do.....	Hobbs & Russ, Warsaw.....
11955	-----	Sirup.....	do.....	P. H. Johnson, High Point.
11142	-----	Molasses.....	Armfield Co., Fayetteville, N. C.	M. L. McRae, Maxton.....
11226	Sirup.....	Sirup Compound.	Atlas Preserving Co., Baltimore, Md.	J. D. Williams, Wilson.....
11288	Sirup, Old Virginia.	Sirup.....	Atlas Specialty Co., Richmond, Va.	Meador Supply Co., Madison.
11303	Molasses, Black Satin.	Molasses.....	do.....	E. M. Towns, Reidsville....
11308	Sorghum Substitute.	Sorghum Substitute.	do.....	A. Steinburg, Greensboro...
11309	Corn Sirup Compound, Silk Velvet.	Corn Sirup.....	do.....	Donnell & Walker, Greensboro.
12201	Corn Sirup, Maple Flavor.	Corn Sirup, Maple Flavor.	do.....	L. J. Lackey, Winston-Salem.
11200	-----	Molasses.....	Austin, Nichols & Co., New York, N. Y.	T. E. White, Edenton.....
11205	Table Sirup, Blue Ribbon.	Compound Sirup.	do.....	Branning Co.'s Store, Edenton.
11973	Rock Candy Sirup	Sirup.....	do.....	Pure Food Store, Charlotte.
11962	-----	Molasses.....	Barger, Frank, Conover, N. C.	Shell Grocery Co., Hickory.
11752	-----	Sirup.....	Barrier, Will, Mount Pleasant, N. C.	Barrier-Widenhouse Co., Concord.
11751	Sirup.....	do.....	do.....	do.....
11749	do.....	do.....	do.....	do.....
11750	do.....	do.....	do.....	do.....
11224	-----	Molasses.....	Barnes-Harrell Co., Wilson, N. C.	Otis Winborne, Wilson.....
11197	Table Sirup, Royalty.	Compound Sirup.	Bently, Shriver & Co., Baltimore, Md.	Broadstreet Grocery Co., New Bern.
11221	-----	Sirup.....	Blackman-Morris Co., New Orleans, La.	Cutrell & Son, Rocky Mount.
11222	-----	do.....	do.....	Joyner & Robins, Rocky Mount.
11959	Sirup, Compound, Blue Ribbon.	do.....	do.....	Piedmont Grocery Co., Statesville.
11225	-----	Molasses.....	do.....	D. C. Braswell, Wilson.....
11207	-----	do.....	do.....	Divers & Raper, Hertford..

SIRUPS, AND SUBSTITUTES FOR SAME—*Continued.*

Laboratory Number.	Polarization, Direct, 20°C. %V.	Polarization, Invert, 20°C. %V.	Sucrose (Clerget)—Per Cent.	Glucose, Commercial (Leach's Formula)—Per Cent.	Solid Matter—Per Cent.	Remarks and Conclusions.
11988	116.0	103.4	9.49	60.85	76.00	Compound sirup. Was sold by retail dealer as sorghum sirup; misrepresented; sale illegal.
11315	131.0	125.4	4.22	72.45	76.22	Compound sirup, and not sirup as labeled; misbranded; sale illegal.
11175	37.0	—18.7	41.98	0.00	77.92	Molasses.
11766	36.0	—17.6	40.40	0.00	-----	Sirup.
11770	34.0	—13.2	35.50	0.00	-----	do.
11776	45.0	4.4	30.60	8.22	77.92	Compound sirup. Sold by retail dealer as sirup; misrepresented; sale illegal.
11181	61.0	22.0	29.39	18.05	75.82	Compound molasses; misbranded; sale illegal.
11955	150.0	143.0	5.28	82.69	-----	Compound sirup. Was sold by retail dealer as sirup; misrepresented; sale illegal.
11142	140.6	136.4	3.16	78.40	72.00	Compound molasses. Sold by retail dealer as molasses; misrepresented; sale illegal.
11226	166.0	158.4	5.73	91.54	-----	Compound sirup, and not sirup as labeled; misbranded; sale illegal.
11288	108.0	92.4	11.75	49.28	62.46	Compound sirup, and not sirup as labeled; misbranded; sale illegal.
11303	36.0	—11.0	35.42	-----	-----	Molasses.
11308	104.0	85.8	13.71	51.60	75.42	Compound sirup.
11309	112.0	96.8	11.45	57.42	76.72	do.
12201	115.0	101.2	10.40	59.77	78.80	do.
11200	37.4	—17.6	41.45	0.00	74.07	Molasses.
11205	136.0	129.8	4.67	75.02	75.57	Compound corn sirup, and not sirup as labeled. Type used in giving ingredients of compound not sufficient; misbranded; sale illegal.
11973	69.0	—22.0	68.44	0.00	68.40	Sirup.
11962	30.0	—19.8	37.53	0.00	75.30	Molasses.
11752	39.2	—14.1	40.18	0.00	-----	Sirup.
11751	40.0	—14.1	40.76	0.00	-----	do.
11749	27.0	—15.4	31.96	0.00	-----	do.
11750	43.0	—14.1	43.04	0.00	-----	do.
11224	38.0	—15.4	40.25	0.00	77.00	Molasses.
11197	124.0	115.3	7.31	66.68	77.00	Compound sirup, and not sirup as labeled; misbranded; sale illegal.
11221	33.0	—15.4	36.47	0.00	83.84	Sirup.
11222	97.0	77.0	15.07	46.85	76.72	Compound sirup. Sold by retail dealer as sirup; misrepresented; sale illegal.
11959	94.0	74.8	14.47	45.44	75.20	do.
11225	121.0	99.0	16.57	59.65	79.00	Compound molasses. Sold by retail dealer as molasses; misrepresented; sale illegal.
11207	60.0	22.0	28.56	17.96	76.92	do.

RESULTS OF THE EXAMINATION OF MOLASSES AND

Laboratory Number	Material and Brand from Label.	Sold by Retail Dealer as—	Manufacturer or Wholesaler.	Retail Dealer or Party Who Sent Sample for Analysis.
11178	Compound Sirup, Blue Ribbon.	Sirup.....	Blackman-Morris Co., New Orleans, La.	Register Bros., Clinton.....
11306	Molasses, Planter's.	Molasses.....	do.....	John Sackwell, Greensboro.
11771	Compound Sirup, Farmers' Favorite.	Compound Sirup.	do.....	W. T. Parker, Weldon.....
11763	Comp. Molasses, Pecan Grove.	Molasses.....	do.....	Braswell & Dawes Co., Elm City.
11963	.....	do.....	do.....	G. H. Lowdermilk, Morganton.
11780	Bell's Sirup.....	Sirup.....	do.....	E. J. Davis & Sons Co., Henderson.
11772	Cane Sirup, Purity	do.....	do.....	W. T. Parker, Weldon.....
11773	.....	do.....	do.....	R. M. Prunell, Weldon.....
12213	Molasses, St. John.	Molasses.....	do.....	W. A. Stacy, Reidsville.....
12211	.....	do.....	do.....	W. D. Hightower, Reidsville.
12210	Molasses, B. S.....	do.....	do.....	Walker Bargain House, Mocksville.
12215	Molasses, New Orleans.	do.....	do.....	Harris & Hubbard, Reidsville.
11208	Sirup, Old Time.....	Sirup.....	do.....	J. M. LeRoy, Elizabeth City.
11145	do.....	do.....	do.....	R. D. Caldwell & Son, Lumberton.
11194	Molasses, Morris.....	Molasses.....	do.....	K. Guthrie, Morehead City.
11195	Molasses.....	do.....	do.....	H. C. Armstrong, New Bern.
11970	Compound Sirup, Pecan Grove.	New Orleans Sirup.	do.....	Epperson-Tilson Co., Lincoln.
11126	Molasses, St. John.	Molasses.....	do.....	Womble & Watson, Sanford
11217	Sirup, Hyperian.....	Sirup.....	The Booth Packing Co., Baltimore, Md.	C. D. Starkey, Greenville..
11150	.....	Molasses.....	Boushee, Ed., Wilmington, N. C.	Prease Grocery Co., Wilmington.
11167	.....	do.....	do.....	Mrs. L. Freimuth, Wilmington.
11168	.....	do.....	do.....	Peter Mohr, Wilmington.....
11153	.....	do.....	do.....	John G. Kulken, Wilmington.
11113	Molasses.....	do.....	do.....	J. C. Vereen, Wilmington.....
11981	Compound Sirup, Pelican.	Compound Sirup.	Bouesquet-Jordan Sirup Co., New Orleans, La.	J. A. Long, Charlotte.....
11201	.....	Molasses.....	Brinkley, A., & Co., Norfolk, Va.	T. E. White, Edenton.....
11159	.....	do.....	Brooks, J. W., Wilmington, N. C.	D. H. & B. B. Bryan, Wilmington.
12204	Sirup, Crystal White.	Compound Sirup.	Castleman-Blackmore Co., Louisville, Ky.	Moser Grocery Co., Winston-Salem.
12217	Molasses.....	Molasses.....	Christian-Winfree Co., Richmond, Va.	J. A. Isley & Bro. Co., Burlington.
11136	.....	Sirup.....	Cooper, W. B., Wilmington, N. C.	J. M. Cooper, Laurinburg..

SIRUPS, AND SUBSTITUTES FOR SAME—*Continued.*

Laboratory Number	Polarization, Direct, 20°C. °V.	Polarization, Invert, 20°C. °V.	Sucrose (Clerget)—Per Cent.	Glucose, Commercial (Leach's Formula)—Per Cent.	Solid Matter—Per Cent.	Remarks and Conclusions.
11178	95.0	70.4	18.54	43.14	77.77	Compound sirup. Sold by retail dealer as sirup; misrepresented; sale illegal.
11306	28.0	-17.6	43.37	0.00	75.27	Molasses.
11771	89.0	74.8	10.70	44.75	76.77	Compound sirup.
11763	83.0	57.2	19.40	35.70	77.50	Compound molasses. Was sold by retail dealer as molasses; misrepresented; sale illegal.
11963	24.0	-17.6	31.35	0.00	77.00	Molasses.
11780	56.0	-13.2	50.70	0.00	77.22	Sirup.
11772	44.8	-20.9	49.50	0.00	73.77	do.
11773	98.0	72.6	19.10	45.00	78.00	Compound sirup. Was sold by retail dealer as sirup; misrepresented; sale illegal.
12213	24.0	-13.2	28.04	0.00	73.20	Molasses.
12211	34.0	-15.4	37.23	0.00	77.00	do.
12210	20.0	-17.6	28.34	0.00	76.70	do.
12215	28.0	-17.6	34.36	0.00	-----	do.
11208	42.0	-16.5	44.09	0.00	73.99	Sirup.
11145	44.0	-20.4	48.54	0.00	75.00	do.
11194	40.0	-4.4	33.46	0.00	74.19	Molasses.
11195	36.0	-15.4	38.74	0.00	76.00	do.
11970	82.0	57.2	18.69	36.19	77.80	Compound sirup. Was sold by retail dealer as sirup; misrepresented; sale illegal.
11126	26.2	-17.6	33.00	0.00	76.62	Molasses.
11217	136.0	133.1	2.18	76.50	72.92	Compound sirup, not properly labeled. The word "sirup" standing alone indicates that contents are derived from a sugar-producing plant; sale illegal.
11150	41.6	-17.6	44.62	0.00	74.54	Molasses.
11167	35.0	-15.4	37.99	0.00	76.42	do.
11168	40.0	-17.6	43.41	0.00	74.27	do.
11153	41.0	-17.6	44.17	0.00	74.00	do.
11113	32.0	-17.6	37.38	0.00	78.17	do.
11981	120.0	110.0	7.53	64.25	-----	Compound corn sirup.
11201	18.0	-17.6	26.82	0.00	77.00	Molasses.
11159	34.0	-17.6	38.89	0.00	76.09	do.
12204	143.0	132.0	8.29	76.97	73.20	Compound sirup, and not sirup as labeled. Type used in giving ingredients of contents not sufficient; misbranded; sale illegal.
12217	28.0	-17.6	34.37	0.00	-----	Molasses.
11136	108.0	94.6	10.10	56.00	69.92	Compound corn sirup. Was sold by retail dealer as sirup; misrepresented; sale illegal.

RESULTS OF THE EXAMINATION OF MOLASSES AND

Laboratory Number.	Material and Brand from Label.	Sold by Retail Dealer as—	Manufacturer or Wholesaler.	Retail Dealer or Party Who Sent Sample for Analysis.
11188	-----	Molasses	Cobb, L. A., & Co., Kinston, N. C.	Lenoir Supply Co., La-Grange.
11193	Compound Sirup	Sirup	do	Burrell-Strowd Co., Kinston
11292	Compound Sirup, Competition.	Sorghum Substitute.	Corn Products Refining Co., New York, N. Y.	C. H. Pettigrew, Reidsville.
11289	Compound Sirup, Tennessee.	Compound Sirup.	do	J. H. Burton, Reidsville
11764	Corn Sirup, Cane Flavor, Golden Glory.	Corn Sirup	do	F. W. Mitchell, Enfield
11312	Compound Sirup, Mary Jane.	Compound Sirup.	do	E. P. Heitman, Winston-Salem.
12194	Molasses, Lassies	Molasses	do	Vogler & Hege, Waughtown.
11143	-----	Sirup	Covington & Hammond, Laurinburg, N. C.	F. L. Orr, Maxton
11131	-----	Molasses	Covington, C. C., & Co., Wilmington, N. C.	Lackey Bros., Hamlet
11185	-----	do	do	J. W. Cole, Goldsboro
11169	-----	do	do	Morton Brunjes, Wilmington.
11165	-----	do	do	J. H. Kuck, Wilmington
12202	Molasses, Black Mammy.	do	do	L. J. Lackey, Winston-Salem.
11171	-----	do	do	E. H. Holmes, Wilmington.
11223	-----	do	do	J. H. Gill, Wilson
12219	-----	do	do	E. E. McAdams, Graham
11146	-----	do	do	R. D. Caldwell & Son, Lumberton.
11148	-----	do	do	M. J. Schulken, Wilmington
11127	Molasses, Faney Pounce.	do	do	Womble & Watson, Sanford.
12208	-----	do	do	Meador Supply Co., Madison.
12207	-----	Sirup	do	do
11140	-----	Molasses	do	The McKinnon Co., Maxton
11163	-----	do	do	E. B. Snipes, Wilmington
11434	-----	do	do	C. C. Covington, Wilmington.
11787	Compound Sirup, Venus.	Compound Sirup.	Deitrick, Thomas P., & Co., Richmond, Va.	E. J. Macon, Louisburg
11784	-----	Sirup	do	White & May, Franklinton.
11219	-----	do	Dozier, O. K., Rocky Mount, N. C.	H. C. Joyner, Rocky Mount.
11976	Molasses, El Toro	Molasses	Dugue & Co., New Orleans, La.	S. A. Harris, Charlotte
11948	Compound Molasses, Pecan.	do	Dunbar Molasses and Sirup Co., New Orleans, La.	D. E. Allred, Greensboro
11982	Compound Sirup, Airio.	Compound Sirup.	do	S. B. Hart, Monroe
11979	Compound Molasses, Vesmar.	Compound Molasses.	do	Sidney Swain, Charlotte

SIRUPS, AND SUBSTITUTES FOR SAME—*Continued.*

Laboratory Number.	Polarization, Direct, 20°C.	Polarization, Invert, 20°C.	Sucrose (Clerget)—Per Cent.	Glucose, Commercial (Leach's Formula)—Per Cent.	Solid Matter—Per Cent.	Remarks and Conclusions.
11188	32.0	—15.4	35.73	0.00	74.00	Molasses.
11193	129.0	115.3	10.32	67.80	79.29	Compound sirup. Was sold by retail dealer as sirup; misrepresented; sale illegal.
11292	129.0	118.8	8.44	68.90	76.22	Compound corn sirup.
11289	100.0	88.0	9.04	52.00	75.82	do.
11764	125.0	116.6	6.30	67.80	75.17	Corn sirup, cane flavor.
11312	143.0	137.5	4.14	79.30	77.00	Compound corn sirup.
12194	142.0	134.2	5.80	77.82	74.30	Compound molasses; misbranded; sale illegal. Type used in giving ingredients of compound not readily noticeable.
11143	92.0	63.8	21.25	40.40	71.19	Compound sirup. Was sold by retail dealer as sirup; misrepresented; sale illegal.
11131	24.0	—17.6	31.35	0.00	79.12	Molasses.
11185	38.0	—17.6	41.91	0.00	75.19	do.
11169	34.6	—17.6	39.34	0.00	74.62	do.
11165	43.0	—17.6	45.68	0.00	72.72	do.
12202	33.0	—17.6	38.14	0.00	75.60	do.
11171	43.0	—16.5	44.85	0.00	73.62	do.
11223	40.0	—16.0	42.21	0.00	72.93	do.
12219	40.0	—17.6	43.41	0.00	75.90	do.
11146	41.0	—17.6	44.17	0.00	73.07	do.
11145	36.0	—17.6	40.40	0.00	77.19	do.
11127	45.0	—17.6	47.11	0.00	73.07	do.
12208	37.0	—15.4	39.49	0.00	-----	do.
12207	36.0	—13.2	37.08	0.00	77.70	Sirup.
11140	42.0	—16.9	44.39	0.00	72.72	Molasses.
11163	33.0	—17.6	38.14	0.00	75.82	do.
11434	36.0	—17.6	40.40	0.00	76.19	do.
11787	118.0	103.4	11.00	61.10	77.22	Compound sirup.
11784	115.0	101.2	10.30	60.00	74.30	Compound sirup. Was sold by retail dealer as sirup; misrepresented; sale illegal.
11219	38.0	—17.6	41.15	0.00	74.12	Sirup.
11976	28.0	—13.2	31.05	0.00	76.70	Molasses.
11948	70.0	35.2	26.23	25.00	72.20	Compound molasses. Was sold by retail dealer as molasses; misrepresented; sale illegal.
11982	120.0	96.8	18.24	58.14	74.70	Compound sirup.
11979	107.0	88.0	14.32	52.96	73.10	Compound molasses.

RESULTS OF THE EXAMINATION OF MOLASSES AND

Laboratory Number.	Material and Brand from Label.	Sold by Retail Dealer as—	Manufacturer or Wholesaler.	Retail Dealer or Party Who Sent Sample for Analysis.
11983	Compound Molasses, Pecan.	Molasses.....	Dunbar Molasses and Sirup Co., New Orleans, La.	S. B. Hart, Monroe.....
11291	Molasses, Uncle Bill.	do.....	Dunbar, Lopez & Dukate Co., New Orleans, La.	Hutcherson Bros., Reidsville.
11129	do.....	do.....	do.....	W. T. Buchanan, Sanford..
11769	Molasses, Auto.....	do.....	do.....	L. J. Moore, Weldon.....
11152	Cane Sirup, King Komus.	Sirup.....	do.....	John G. Kulken, Wilmington.
11290	Sorghum Substitute, Tenasea.	Sorghum Substitute.	do.....	J. H. Burton, Reidsville....
11186	Molasses, Uncle Bill.	Molasses.....	do.....	J. W. Cole, Goldsboro.....
11974	Compound Sirup, Airio.	Compound Sirup.	do.....	E. A. Moffitt, Charlotte....
11123	do.....	Molasses.....	Dunn & Co., Fayetteville, N. C.	Sanford Supply Co., Sanford.
11124	do.....	do.....	do.....	do.....
11218	do.....	Sirup.....	Edwards, George S., & Co., Rocky Mount, N. C.	F. Y. Arrington, Rocky Mount.
11774	Compound Sirup, Gold Leaf.	do.....	Fleming & Christian, Richmond, Va.	Eugene Johnston, Littleton.
11969	do.....	do.....	do.....	M. A. McSwain & Son, Shelby.
11202	do.....	Molasses.....	The Four Co., Norfolk, Va.....	J. S. Northcot, Edenton....
11203	Corn Sirup, Golden Horseshoe.	Corn Sirup.....	do.....	A. J. Ward, Edenton.....
11958	Compound Sirup, Gayco.	Sirup.....	Gay, C. B., & Co., Jacksonville, Fla.	D. L. Cauble, Salisbury....
11765	Sirup, LaBelle.....	Compound Sirup.	Gibbs Preserving Co., Baltimore, Md.	W. J. Burgess, Enfield.....
11187	do.....	Molasses.....	Ginn, J. T., & Co., Goldsboro, N. C.	A. W. Kennedy, Jr., La-Grange.
11117	do.....	do.....	do.....	W. R. Jeanette, Mount Olive.
11118	Molasses.....	do.....	Goldsboro Grocery Co., Goldsboro, N. C.	Southerland & Co., Goldsboro.
11120	do.....	do.....	do.....	C. D. Taylor, Goldsboro....
11116	do.....	do.....	do.....	L. C. McCullin, Mount Olive.
11229	do.....	do.....	Hall & Pierson, Wilmington, N.C.	W. J. Council, Red Springs.
11173	do.....	do.....	Hashagan, F. E., & Co., Wilmington, N. C.	King Bros., Wilmington....
11149	do.....	do.....	do.....	W. P. Woodcock, Wilmington.
11155	do.....	do.....	do.....	R. L. Burton, Wilmington..
11192	do.....	do.....	Hart & Harrington, Kinston, N. C.	R. L. Hardy, Kinston.....
11778	Compound Sirup, Montross.	Compound Sirup.	Hearn & Jones, New Orleans, La.	Howell Bros., Oxford.....
11144	Sirup, Louise.....	do.....	The Heath-Morrow Co., Monroe, N. C.	King Grocery Co., Lumberton.
11993	do.....	do.....	do.....	E. B. Liles, Rockingham....

SIRUPS, AND SUBSTITUTES FOR SAME—*Continued.*

Laboratory Number.	Polarization, Direct, 20°C. °V.	Polarization, Invert, 20°C. °V.	Sucrose (Clerget) — Per Cent.	Glucose, Commercial (Leach's Formula) — Per Cent.	Solid Matter — Per Cent.	Remarks and Conclusions.
11983	98.0	77.0	15.83	46.95	76.70	Compound molasses. Was sold by retail dealer as molasses; misrepresented; sale illegal.
11291	38.0	-15.4	40.25	0.00	76.87	Molasses.
11129	37.2	-18.0	41.61	0.00	75.42	do.
11769	37.0	-18.7	41.90	0.00	75.42	do.
11152	49.0	-17.6	50.20	0.00	70.72	Sirup.
11290	55.0	22.0	24.87	17.20	75.82	Sorghum substitute.
11186	35.0	-14.3	37.16	0.00	76.77	Molasses.
11974	90.0	59.4	23.06	38.22	72.70	Compound sirup.
11123	38.0	-16.0	40.70	0.00	73.27	Molasses.
11124	42.0	-16.5	44.11	0.00	72.94	do.
11218	105.6	81.4	18.24	49.30	77.66	Compound sirup. Sold by retail dealer as sirup; misrepresented; sale illegal.
11774	133.0	121.0	9.00	70.80	-----	do.
11969	158.0	158.0	0.00	90.28	-----	do.
11202	82.0	50.6	33.40	13.94	74.12	Compound molasses. Sold by retail dealer as molasses; misrepresented; sale illegal.
11203	133.0	132.0	0.00	75.42	76.09	Corn sirup.
11958	76.0	44.0	24.12	29.64	76.50	Compound sirup. Was sold by retail dealer as sirup; misrepresented; sale illegal.
11765	122.0	109.5	9.40	63.40	-----	Compound sirup, and not sirup as labeled; misbranded; sale illegal.
11187	32.0	-17.6	37.38	0.00	75.00	Molasses.
11117	32.0	-17.6	37.38	0.00	76.62	do.
11118	35.2	-17.6	39.80	0.00	75.42	do.
11120	45.0	-16.5	46.35	0.00	72.37	do.
11116	43.0	-18.4	46.28	0.00	72.92	do.
11229	75.0	39.6	26.67	27.60	78.00	Compound molasses. Was sold by retail dealer as molasses; misrepresented; sale illegal.
11173	45.0	-10.0	41.45	0.00	76.17	Molasses.
11149	48.0	8.8	29.54	10.50	76.72	Compound molasses. Sold by retail dealer as molasses; misrepresented; sale illegal.
11155	34.0	-17.6	38.89	0.00	76.00	Molasses.
11192	32.0	-17.6	37.38	0.00	78.17	do.
11778	106.0	89.1	11.90	48.00	72.52	Compound sirup. The type used in giving ingredients should be same size as type in name of material.
11144	147.0	143.0	3.01	82.30	75.57	Compound sirup, and not sirup as branded; misbranded; sale illegal.
11993	144.0	138.6	4.07	79.94	75.80	do.

RESULTS OF THE EXAMINATION OF MOLASSES AND

Laboratory Number.	Material and Brand from Label.	Sold by Retail Dealer as—	Manufacturer or Wholesaler.	Retail Dealer or Party Who Sent Sample for Analysis.
11782	Compound Sirup, Melrose.	Sirup.....	Henderson Grocery Co., Henderson, N. C.	C. D. Harton, Henderson..
11154	Molasses.....	Molasses.....	Heyer Bros., Wilmington, N. C.	C. L. Kuhl, Wilmington....
11164	do.....	do.....	do.....	J. J. Mohr, Wilmington.....
11156	do.....	Sirup.....	do.....	C. R. Pope, Wilmington....
11161	do.....	Molasses.....	do.....	E. S. Borneman, Wilmington.
11114	Molasses.....	do.....	do.....	J. R. Guthrie, Jr., Wilmington.
11216	do.....	do.....	Hobart, Henry L., & Co., New York, N. Y.	J. R. & J. G. Moye, Greenville.
11170	do.....	do.....	do.....	Holmes Grocery Co., Wilmington.
11952	do.....	do.....	Jones, J. W., & Co., Greensboro, N. C.	J. T. Lambert, Greensboro..
11989	Sirup, Charleston.	Sirup.....	Kuester-Lowe Co., Charlotte, N. C.	Farmers' Union Store, Lilesville.
12203	Sirup, Pride of Orleans.	do.....	Langhoff Bros. Co., New Orleans, La.	J. R. Cummings, Winston-Salem.
11128	do.....	Molasses.....	do.....	W. H. Wicker & Son, Sanford.
11972	Molasses, Enola.	do.....	do.....	Lippard & Barrier, Concord
11984	Compound Sirup, Lang Co.	Compound Sirup.	do.....	W. H. Little Co., Wadesboro.
11313	Compound Molasses, Crescent.	Compound Molasses.	do.....	Reid Grocery Co., Winston-Salem.
12218	Molasses, Golden Crown.	Molasses.....	do.....	E. E. McAdams, Graham...
11307	Compound Sirup, Morning Glory.	Compound Sirup.	Louisiana Molasses Co., New Orleans, La.	A. Steinburg, Greensboro...
11287	Table Sirup, Banquet.	Table Sirup...	Lucas & Moyler, Roanoke, Va.	Webster & Robertson, Madison.
11176	Sirup, Liles' Golden.	Sirup.....	Liles, Abram, & Son, London, England.	Wilmington Grocery Co., Wilmington.
11211	Table Sirup, Maryland.	Table Sirup Compound.	Mangles-Herold Co., Baltimore, Md.	M. P. Gallop Co., Elizabeth City.
11968	do.....	Sirup.....	McDaniel, J. C., Eure, N. C.	Reid-Erwin Co., Rutherfordon.
11198	do.....	Molasses.....	do.....	Mrs. J. W. Goulding, New Bern.
11182	do.....	do.....	McNair & Pearsall, Wilmington, N. C.	J. B. Cox, Warsaw.....
11162	do.....	do.....	McNair, S. P., & Co., Wilmington, N. C.	W. R. Dyson, Wilmington..
12195	Molasses, XXXX.	do.....	Messick, E. R., Winston-Salem, N. C.	Bodenheimer Bros., Wauhtown.
11119	Molasses.....	do.....	Meyer, New Orleans, La.	C. D. Taylor & Co., Goldsboro.
12206	Compound Molasses.	Sorghum Substitute.	Moir & Trout, Roanoke, Va.	City Grocery Co., Madison.
11960	do.....	Sirup.....	Morrison, J. F., Produce and Provision Co., Statesville, N. C.	Miller-McLean Supply Co., Statesville.
11314	Sirup, Esta.	do.....	New Orleans Coffee Co., New Orleans, La.	Efrid Bros., Winston-Salem.

SIRUPS, AND SUBSTITUTES FOR SAME—*Continued.*

Laboratory Number.	Polarization, Direct, 20°C. v.	Polarization, Invert, 20°C. v.	Sucrose (Clerge) — Per Cent.	Glucose, Commercial (Leach's Formula) — Per Cent.	Solid Matter — Per Cent.	Remarks and Conclusions.
11782	112.0	91.3	15.60	55.10	75.57	Compound sirup. Was sold by retail dealer as sirup; misrepresented; sale illegal.
11154	42.0	—17.6	44.92	0.00	73.67	Molasses.
11164	44.0	—17.6	46.43	0.00	72.62	do.
11156	42.0	—17.6	44.92	0.00	74.00	Sirup.
11161	45.4	—13.2	44.17	0.00	73.00	Molasses.
11114	44.0	—17.6	46.43	0.00	73.82	do.
11216	40.0	—14.3	40.93	0.00	77.62	do.
11170	31.0	—15.4	34.97	0.00	75.00	do.
11952	82.0	52.8	22.00	34.28	75.90	Compound molasses. Was sold by retail dealer as molasses; misrepresented; sale illegal.
11989	35.0	—17.6	39.65	0.00	76.70	Sirup.
12203	50.0	—14.3	48.46	0.00	66.90	do.
11128	32.0	—17.6	37.38	0.00	74.12	Molasses.
11972	28.0	—17.6	34.37	0.00	76.00	do.
11984	103.0	71.5	23.74	45.17	73.10	Compound sirup.
11313	70.0	39.6	23.06	26.80	71.67	Compound molasses.
12218	32.0	—13.2	34.07	0.00	77.60	Molasses.
11307	65.0	35.2	22.46	23.70	72.67	Compound sirup.
11287	146.0	138.6	5.57	80.20	75.82	Compound sirup and not table sirup as branded; misbranded; sale illegal.
11176	20.0	—20.9	30.83	0.00	-----	Sirup.
11211	96.0	73.7	16.80	45.20	73.74	Compound sirup, and not table sirup as branded; misbranded; sale illegal.
11968	48.0	—14.3	46.96	0.00	74.90	Sirup.
11198	26.0	—17.6	32.86	0.00	77.77	Molasses.
11182	37.0	—17.6	41.15	0.00	76.62	do.
11162	42.0	—17.6	44.92	0.00	73.54	do.
12195	32.0	—17.6	37.39	0.00	-----	do.
11119	36.0	—17.6	40.40	0.00	77.00	do.
12206	148.0	118.8	22.01	72.00	-----	Compound corn sirup and molasses.
11960	24.0	—15.4	29.72	0.00	76.20	Sirup.
11314	56.0	—11.7	51.03	0.00	62.00	do.

RESULTS OF THE EXAMINATION OF MOLASSES AND

Laboratory Number.	Material and Brand from Label.	Sold by Retail Dealer as—	Manufacturer or Wholesaler.	Retail Dealer or Party Who Sent Sample for Analysis.
11191	Sirup, New South.	Sirup.....	New Orleans Coffee Co., New Orleans, La.	J. G. Brown, Kinston.....
11304	Compound Sirup..	Corn Sirup.....	do.....	J. M. Tisdale, Burlington...
11293	Sirup, Esta.....	Sirup.....	do.....	do.....
12209	Molasses, No. 245..	Molasses.....	do.....	Farmers Supply Store, Walnut Cove.
11957	Cane Sirup, New South.	Sirup.....	do.....	N. P. Murphy, Salisbury...
11978	Molasses, Belle Rose.	Molasses.....	do.....	S. A. Harris, Charlotte.....
11137	Compound Sirup, Sweetland.	Compound Sirup.	do.....	H. O. Covington, Laurinburg.
11139	Compound Sirup, Raven.	Sirup Compound.	do.....	G. W. Goodwyn, Laurinburg.
11227	.....	Molasses.....	New Orleans Coffee and Molasses Co., New Orleans, La.	W. G. Clark, Fayetteville...
11133	Comp. Molasses, Louisiana Beauty	Compound Molasses.	Penick & Ford, New Orleans, La.	M. L. Millikin & Co., Hamlet.
11966	Comp. Molasses, Perfection.	do.....	do.....	W. B. Ratcliffe, Marion.....
11990	Sirup.....	Sirup Compound.	do.....	J. A. Dabbs, Lilesville.....
11991	Compound Sirup, Car-Wi-Co.	Compound Sirup.	Penick & Ford, Columbus, Ga....	J. T. Saunders & Co., Lilesville.
11992	Sirup, Ingleside....	Sirup.....	Penick & Ford, New Orleans, La.	Watson & King Co., Rockingham.
11975	Sirup, Swanee.....	do.....	do.....	U. G. Hagar, Charlotte.....
11785	.....	do.....	Reavis, P. A., & Co., Louisburg, N. C.	A. W. Perry, Jr., & Co., Louisburg.
11130	.....	Molasses.....	Sanford Grocery Co., Sanford, N. C.	W. M. Davis, Sanford.....
11147	Molasses, Monogram XXXX.	do.....	Saunders, E. A., & Co., Richmond, Va.	C. B. Redmond Parlor Grocery, Lumberton.
12214	Compound Sirup, Silver Drip.	Sirup.....	do.....	Harris & Hubbard, Reidsville.
11951	Molasses.....	Molasses.....	do.....	M. S. Jeffreys, Greensboro..
11947	Compound Sirup, Silver Drip.	Sirup.....	do.....	Carpenter Bros., Durham...
11956	.....	Molasses.....	do.....	Brown-Southern Grocery Co., High Point.
11779	Compound Sirup, Sweet Sixteen.	Compound Sirup.	do.....	Taylor Bros., Oxford.....
11220	Molasses, Corn, and Cane Sirup, P. R. No. 4.	Molasses.....	do.....	H. C. Joyner, Rocky Mount.
11945	Compound Sirup, Silver Drip.	Sirup.....	do.....	T. M. Stevens & Co., Durham.
11190	.....	Molasses.....	Sitizen, S. C., Kinston, N. C.....	W. H. Murphy, Kinston....
12199	.....	do.....	Smitherman-Stone Co., Winston-Salem, N. C.	J. Phillips & Son, Winston-Salem.
12205	Molasses, Southern Pride.	do.....	do.....	Hill & Tilley, Winston-Salem.
11783	.....	Sirup.....	Southern Grocery Co., Henderson, N. C.	Evans Bros., Henderson....

SIRUPS, AND SUBSTITUTES FOR SAME—*Continued.*

Laboratory Number.	Polarization, Direct, 20°C. °V.	Polarization, Invert, 20°C. °V.	Sucrose (Clerget) — Per Cent.	Glucose, Commercial (Leach's Formula) — Per Cent.	Solid Matter — Per Cent.	Remarks and Conclusions.
11191	49.0	—19.8	51.86	0.00	71.62	Sirup.
11304	91.6	66.0	19.29	41.30	74.34	Compound sirup.
11293	62.0	—20.9	62.49	0.00	67.63	Sirup.
12209	34.0	—13.2	35.57	0.00	77.20	Molasses.
11957	54.0	—19.4	55.32	0.00	71.60	Sirup.
11978	42.0	—17.6	44.92	0.00	75.30	Molasses.
11137	92.0	66.0	19.59	41.30	-----	Compound corn sirup and molasses.
11139	92.0	63.5	21.48	40.30	69.52	Compound corn sirup.
11227	31.0	—14.3	34.14	0.00	76.00	Molasses.
11133	68.0	30.8	23.03	22.80	77.20	Compound molasses and corn sirup.
11966	74.0	39.6	25.93	27.42	76.00	do.
11990	96.0	57.2	29.24	38.14	73.10	Compound sirup, and not sirup as branded; misbranded; sale illegal. Type used in naming ingredients too small.
11991	112.0	88.0	18.09	53.65	76.00	Compound sirup. The words "corn and sugar-cane" should be same size type as the word "sirup."
11992	36.0	—19.8	42.06	0.00	71.80	Sirup.
11975	42.4	—20.9	47.71	0.00	70.80	do.
11785	140.0	133.0	5.20	77.00	76.77	Compound sirup. Sold by retail dealer as sirup; misrepresented; sale illegal.
11130	38.0	—17.6	40.40	0.00	74.67	Molasses.
11147	36.0	—18.7	41.22	0.00	75.42	do.
12214	118.0	103.4	11.00	61.14	76.00	Compound sirup. Sold by retail dealer as sirup; misrepresented; sale illegal.
11951	40.0	—19.8	45.07	0.00	74.40	Molasses.
11947	118.0	99.0	14.32	59.24	76.20	Compound sirup. Was sold by retail dealer as sirup; misrepresented; sale illegal.
11956	39.0	—17.6	42.66	0.00	73.80	Molasses.
11779	126.0	110.0	12.20	65.10	-----	Compound sirup.
11220	97.0	67.3	20.86	43.20	75.27	Compound molasses, corn and cane sirup. Sold by retail dealer as molasses; misrepresented; sale illegal.
11945	116.0	100.0	12.06	59.39	75.90	Compound sirup. Was sold by retail dealer as sirup; misrepresented; sale illegal.
11190	43.0	—11.0	40.78	0.00	71.82	Molasses.
12199	36.0	—17.6	38.13	0.00	76.70	do.
12205	30.0	—13.2	32.56	0.00	75.90	do.
11783	134.0	119.9	10.60	70.50	-----	Compound sirup. Was sold by retail dealer as sirup; misrepresented; sale illegal.

RESULTS OF THE EXAMINATION OF MOLASSES AND

Laboratory Number.	Material and Brand from Label.	Sold by Retail Dealer as—	Manufacturer or Wholesaler.	Retail Dealer or Party Who Sent Sample for Analysis.
11160	Sirup, Piney Woods.	Sirup.....	South Georgia Sirup Co., Valdosta, Ga.	N. Humphrey, Wilmington.
11310	Molasses and Corn Sirup, B. and O.	Compound Molasses.	Southern Molasses Co., New York, N. Y.	A. & P. Tea Co., Greensboro.
11950	.....	Sirup.....	Staley, W. S., Julian, N. C.....	M. S. Jeffreys, Greensboro..
11172	.....	do.....	Stevenson, J. C., Co., Wilmington, N. C.	Southern Grocery Co., Wilmington.
11122	Table Sirup.....	do.....	Stewart, Knatz & Co., Baltimore, Md.	W. M. Smith, Goldsboro....
11184	Table Sirup, Golden Crown.	Sirup Compound.	do.....	H. Williams, Goldsboro....
11775	Sorghum Substitute, Old Time.	Sorghum Substitute.	Stokes-Grimes Grocery Co., Richmond, Va.	J. T. Sizemore, Oxford.....
11777	Corn Sirup.....	White Sirup.....	do.....	J. D. Brooks, Oxford.....
11964	.....	Molasses.....	Stroupe, A. W., Morganton, N. C.	L. A. Kincaid, Morganton..
11961	.....	do.....	Summitt, A. C., Newton, N. C.	Young Bros., Newton.....
11189	Molasses, Imported Extra.	do.....	Summerell & McCoy, Kinston, N. C.	W. W. Tuton, Kinston.....
12198	Compound Molasses, Muscavado.	do.....	Taylor Grocery Co., Winston-Salem, N. C.	Settle Mercantile Co., Winston-Salem.
11786	.....	Sirup.....	Taylor, J. A., Wilmington, N. C.	W. F. Davis, Louisburg....
11781	Compound Sirup, Vanilla Flavor.	do.....	Thomason, J. T., Henderson, N. C.	J. A. B. Faulkner, Henderson.
11206	Molasses and Corn Sirup, Melwood.	Molasses and Corn Sirup.	Torbitt & Castleman, Louisville, Ky.	V. D. Jones, Edenton.....
11214	Sirup, First Prize..	Sirup Compound.	Universal Trading Co., Baltimore, Md.	A. T. Gaylord, Plymouth..
11212	Molasses, Blue Ribbon.	Molasses.....	Van Lill, S. J., Co., Baltimore, Md.	R. B. White, Elizabeth City.
11183	.....	Sirup.....	Waters, J. H., Wilmington, N. C.	John Frederick, Warsaw....
11115	.....	Molasses.....	do.....	L. T. New, Wilmington....
11199	.....	do.....	Weatherly, W. H., Co., Elizabeth City, N. C.	J. F. Bishop, Belhaven....
11305	Table Sirup, Honey Dew.	Table Sirup....	Weller, J., & Co., Cincinnati, Ohio.	Tucker & Irvin, Greensboro
12216	.....	Molasses.....	White, A. S., & Co., Lynchburg, Va.	J. A. Isley & Bro. Co., Burlington.
11946	.....	do.....	do.....	J. C. Hewitt, Durham.....
11971	Sorghum and Corn Sirup.	Sorghum and Corn Sirup.	Wilder, D. R., Mfg. Co., Atlanta, Ga.	Gaston Seed and Provision Co., Gastonia.
11134	Corn and Cane Sirup, Blend, Eagle, Southern Farm.	Sirup.....	do.....	G. J. Jacobs, Laurinburg...
11179	.....	do.....	Williamson, Frank, Clinton, N. C.	W. D. Kelly, Clinton.....
11213	Molasses, Coronet..	Molasses.....	Williams, R. C., & Co., New York, N. Y.	W. T. Williams, Elizabeth City.
11210	.....	Sirup.....	do.....	Pritchard & Jackson, Elizabeth City.

SIRUPS, AND SUBSTITUTES FOR SAME—*Continued.*

Laboratory Number.	Polarization, Direct, 20°C. °V.	Polarization, Invert, 20°C. °V.	Sucrose (Clerget) — Per Cent.	Glucose, Commercial (Leach's Formula) — Per Cent.	Solid Matter — Per Cent.	Remarks and Conclusions.
11160	49.0	—20.9	52.68	0.00	71.00	Sirup.
11310	79.6	55.0	18.54	33.60	74.27	Compound molasses.
11950	30.0	—17.6	35.88	0.00	75.10	Sirup.
11172	75.0	41.8	17.48	32.80	77.62	Compound sirup. Was sold by retail dealer as sirup; misrepresented; sale illegal.
11122	130.0	123.2	8.44	69.40	78.00	Compound corn sirup and refiners' sirup; misbranded; sale illegal. It is branded "fancy table sirup;" a "compound."
11184	123.0	111.1	8.97	65.10	77.66	Compound sirup, labeled "table sirup," and in small letters, "compound corn and sugar refiner's sirup"; misbranded; sale illegal.
11775	89.0	69.3	14.80	42.40	75.00	Compound sirup.
11777	124.0	102.4	16.20	61.60	75.50	Compound sirup. Was sold by retail dealer as sirup; misrepresented; sale illegal.
11964	26.0	—15.4	31.20	0.00	75.50	Molasses.
11961	36.0	—12.3	36.40	0.00	67.80	do.
11189	39.0	—16.5	41.83	0.00	74.00	do.
12198	108.0	83.6	18.39	51.20	75.40	Compound molasses. Was sold by retail dealer as molasses; misrepresented; sale illegal.
11786	126.0	114.4	8.74	67.00	77.22	Compound sirup. Was sold by retail dealer as sirup; misrepresented; sale illegal.
11781	84.0	50.6	25.10	33.60	-----	do.
11206	90.0	62.7	20.57	39.60	75.00	Compound molasses and corn sirup.
11214	138.0	138.0	0.00	78.85	74.12	Compound sirup, and not sirup as labeled; misbranded; sale illegal. Type used in naming ingredients not sufficient size.
11212	21.0	—17.6	29.09	0.00	75.00	Molasses.
11183	136.0	125.4	7.99	73.10	78.48	Compound sirup. Was sold by retail dealer as sirup; misrepresented; sale illegal.
11115	44.4	—17.6	46.73	0.00	73.29	Molasses.
11199	68.0	24.2	33.01	0.00	78.17	do.
11305	148.0	147.4	0.00	84.23	74.87	Corn sirup. Is branded "Honey dew table sirup"; adulterated and misbranded; sale illegal.
12216	48.0	11.0	27.89	11.49	74.80	Compound molasses. Sold by retail dealer as molasses; misrepresented; sale illegal.
11946	32.0	—8.8	30.60	0.00	75.10	Molasses.
11971	92.0	68.2	17.94	42.32	74.60	Compound corn sirup and sorghum sirup.
11134	114.0	96.8	12.96	57.70	75.29	Compound corn sirup and refiners' sirup; misbranded; sale illegal. It is branded "Blend of corn and cane."
11179	29.0	—15.4	33.46	0.00	76.17	Sirup.
11213	29.0	—17.6	35.12	0.00	77.00	Molasses.
11210	144.0	138.6	4.07	79.90	76.22	Compound sirup. Was sold by retail dealer as sirup; misrepresented; sale illegal.

RESULTS OF THE EXAMINATION OF MOLASSES AND

Laboratory Number.	Material and Brand from Label.	Sold by Retail Dealer as—	Manufacturer or Wholesaler.	Retail Dealer or Party Who Sent Sample for Analysis.
11209	-----	Molasses	Woodley, W. J., Elizabeth City, N. C.	J. W. Brothers, Elizabeth City.
11166	-----	do	-----	W. D. Duncan, Wilmington
11141	-----	do	-----	M. Fine, Maxton
11768	-----	Sirup	-----	L. B. Gardner, Whitakers
12212	-----	do	-----	Hazel Mimms, Reidsville
12200	Black Mammy	Molasses	-----	J. A. Hauchins, Winston-Salem.
11180	-----	do	-----	W. D. Kelly, Clinton
11158	-----	Sirup	-----	F. P. Lamb, Wilmington
11157	-----	Molasses	-----	do
11767	-----	Sirup	-----	T. A. Marshall, Enfield
11228	-----	do	-----	J. F. Powers & Son, Fayetteville.
11215	-----	Molasses	-----	Theo Roberson & Co., Williamston.
11954	-----	do	-----	W. T. Sockwell, Greensboro
12196	Molasses, 1111	do	-----	Southside Grocery Co., Winston-Salem.
12197	-----	do	-----	do
11132	-----	do	-----	C. V. Williams & Co., Hamlet.
11151	-----	do	-----	Wilmington Trading Co., Wilmington.

ORANGE EXTRACT AND ORANGE EXTRACT SUBSTITUTES.

Orange extract is the flavoring extract prepared from oil of orange, or from orange peel, or both, and contains not less than 5 per cent by volume of oil of orange. Oil of orange is the volatile oil obtained from the fresh peel of the orange.

RESULTS OF THE EXAMINATION OF ORANGE

Laboratory Number.	Material and Brand from Label.	Manufacturer or Wholesaler.	Retail Dealer or Party Who Sent Sample for Analysis.
12605	Orange Extract, Nelson's	Nelson & Moore Mfg. Co., Rogersville, Tenn.	R. H. Ward, Marshall
12602	Orange Extract, Dr. Price's	Price Flavoring Extract Co., Chicago, Ill.	Patrik McIntyre, Asheville
12603	Orange Extract, Vick's Triangle.	Richardson, L., Drug Co., Greensboro, N. C.	C. Dunbar, High Point
12604	Orange Extract, Pilot	Winston Drug Co., Winston-Salem, N. C.	do

SIRUPS, AND SUBSTITUTES FOR SAME—*Continued.*

Laboratory Number.	Polarization, Direct, 20°C. %V.	Polarization, Invert, 20°C. %V.	Sucrose (Clerget)—Per Cent.	Glucose, Commercial (Leuchs's Formula)—Per Cent.	Solid Matter—Per Cent.	Remarks and Conclusions.
11209	33.0	—17.6	38.06	0.00	76.92	Molasses.
11166	21.0	—17.6	29.08	0.00	78.00	do.
11141	126.0	110.0	12.05	65.80	81.04	Compound corn sirup and molasses. Was sold by retail dealer as molasses; misrepresented; sale illegal.
11768	38.0	—15.4	40.20	0.00	-----	Sirup.
12212	156.0	151.8	3.16	87.33	-----	Compound sirup. Was sold by retail dealer as sirup; misrepresented; sale illegal.
12200	24.0	—15.4	29.70	0.00	-----	Molasses.
11180	40.0	—17.6	43.41	0.00	73.62	do.
11158	34.0	—17.6	38.89	0.00	77.69	Sirup.
11157	32.0	—13.2	34.07	0.00	76.42	Molasses.
11767	98.0	73.7	18.80	45.20	-----	Compound sirup. Was sold by dealer as sirup; misrepresented; sale illegal.
11228	86.0	62.7	17.56	39.00	-----	do.
11215	120.0	118.8	0.00	68.57	-----	Compound corn sirup. Sold by retail dealer as molasses; misrepresented; sale illegal.
11954	36.0	—13.2	37.16	0.00	77.80	Molasses.
12196	40.0	—13.2	40.10	0.00	74.00	do.
12197	30.0	—13.2	32.56	0.00	-----	do.
11132	43.2	—17.6	37.53	0.00	74.00	do.
11151	33.0	—17.6	38.14	0.00	73.74	do.

Four samples of these products were examined, three of which were adulterated or misbranded. Two of the three samples were imitation extracts, though branded orange extracts, and one was below standard in oil of orange.

EXTRACTS AND ORANGE EXTRACT SUBSTITUTES.

Laboratory Number.	Oil of Orange (by Precipitation)—Per Cent.	Oil of Orange (by Polarization)—Per Cent.	Remarks and Conclusions.
12605	4.6	-----	Orange extract, below standard; misbranded; sale illegal.
12602	6.6	-----	Orange extract.
12603	0.7	0.9	Imitation orange extract; misbranded; sale illegal.
12604	0.0	0.0	do.

CANNED PEAS.

Canned peas are sound, properly matured and prepared fresh peas sterilized by heat, kept in suitable, clean, hermetically sealed containers, from which they take up no metallic substance, and conform in name to the peas used in their preparation.

For adulteration and coloring of canned vegetables with copper sulphate, see "Canned Beans" in this report.

RESULTS OF THE EXAMINA

Laboratory Number.	Material and Brand from Label.	Manufacturer or Wholesaler.	Retail Dealer or Party Who Sent Sample for Analysis.
12450 Peas, Mandron.....		Antrim, C. W., & Sons, Richmond, Va.	H. H. Patterson, Chapel Hill.....
12422 Peas, Princess Anne.....		do.....	N. Humphrey, Wilmington.....
12452 Peas, A. & P.....		Atlantic-Pacific Tea Co., Jersey City, N. J.	A. & P. Tea Co., Greensboro.....
12447 Peas, Verginand.....		Austin, Nichols & Co., New York, N. Y.	L. P. Hicks, Louisburg.....
12426 Peas, La Saleil.....		do.....	E. H. Holmes, Wilmington.....
12430 Peas, Monbadon.....		do.....	S. W. Sanders, Wilmington.....
12433 Peas, Mandron.....		do.....	James F. Parrot & Bro., Kinston.....
12438 Peas, Rodier.....		do.....	Oppenheimer's, Rocky Mount.....
12441 Peas, Ferrier.....		do.....	Moody-Carroll Co., Wilson.....
12446 ..do.....		do.....	B. G. Hicks, Louisburg.....
12437 Peas, Rosebud.....		East Brooklyn Preserving Works, East Brooklyn, Md.	J. B. Morton, Morehead City.....
12415 Peas.....		Curtis Bros. & Co., Rochester, N. Y.	J. S. Westbrook, Wilmington.....
12417 Peas, O. D.....		Elliot & Glenn, Norfolk, Va.....	John G. Kuhlken, Wilmington.....
12432 Peas, Sweet Sixteen.....		Foot, D. E., & Co., Baltimore, Md.	Lenoir Supply Co., LaGrange.....
12424 Peas, Bow Knot.....		Hemingway, H. F., & Co., Baltimore, Md.	C. A. Montgomery, Wilmington..
12412 Peas, Cresca.....		Kuester-Lowe Co., Charlotte, N. C.	M. L. Millikin & Co., Hamlet....
12411 ..do.....		do.....	C. V. Williams & Co., Hamlet....
12418 Peas, Ridgefarm.....		Langrall, J., & Bros., Baltimore, Md.	G. D. Woodse, Wilmington.....
12419 Peas, Maryland Chief.....		do.....	R. L. Burton, Wilmington.....
12427 ..do.....		do.....	Peoples Supply Co., Wilmington.....
12425 Peas, Mandron.....		Leggett, Francis H., & Co., New York, N. Y.	do.....
12439 Peas, LaSaleil.....		do.....	F. Y. Arrington, Rocky Mount...
12414 Peas, Jumbo.....		Miller Bros. & Co., Baltimore, Md.	R. H. Strickland, Maxton.....
12420 Peas, Rose.....		do.....	J. D. Burnett & Co., Wilmington.
12425 Peas, Beau Marchand.....		Moose & Co., New York, N. Y.	Holmes Grocery Co., Wilmington
12429 Peas, L. A. Price.....		Price, L. A., Bordeaux, France.....	S. W. Sanders, Wilmington.....
12435 Peas, Pocket Book.....		Reiter, Andrew & Co., Baltimore, Md.	Spencer & Co., Kinston.....
12421 Peas, Caroline.....		Saulsbury Bros., Ridgely, Md.....	D. H. & B. B. Bryan, Wilmington
12413 Peas, Jessup.....		Summers, Charles G., & Co., Baltimore, Md.	H. O. Covington, Laurinburg....
12410 Peas, Pocahontas.....		Taylor, H. P., Jr., Richmond, Va....	W. H. Tillman, Mount Olive....

Under the head of canned peas 39 samples were collected and examined, 23 of which were found to be artificially colored with copper sulphate, a poisonous substance.

In the annual Food Report of this Department for 1912 dealers were notified that the coloring of vegetables with copper sulphate was regarded as an adulteration, and that the sale of such after January 1, 1913, would be considered a violation of the law and prosecutions for same would be recommended by this Department.

TION OF CANNED PEAS.

Laboratory Number.	Adulterants.	Remarks and Conclusions.
12450	Copper.....	Canned peas, colored with copper sulphate, a poisonous substance; adulterated; sale illegal.
12422	None found.....	Canned peas.
12452	Copper.....	Canned peas, colored with copper sulphate, a poisonous substance; adulterated; sale illegal.
12447	do.....	do.
12426	do.....	do.
12430	do.....	do.
12433	do.....	do.
12438	do.....	do.
12441	do.....	do.
12446	do.....	do.
12437	None found.....	Canned peas.
12415	do.....	do.
12417	do.....	do.
12432	do.....	do.
12424	do.....	do.
12412	Copper.....	Canned peas, artificially colored with copper sulphate, a poisonous substance; adulterated; sale illegal.
12411	do.....	do.
12418	None found.....	Canned peas.
12419	do.....	do.
12427	do.....	do.
12428	Copper.....	Canned peas, artificially colored with copper sulphate, a poisonous substance; adulterated; sale illegal.
12439	do.....	do.
12414	None found.....	Canned peas.
12420	do.....	do.
12425	Copper.....	Canned peas, artificially colored with copper sulphate, a poisonous substance; adulterated; sale illegal.
12429	do.....	do.
12435	None found.....	Canned peas.
12421	do.....	do.
12413	do.....	do.
12410	do.....	do.

RESULTS OF THE EXAMINATION

Laboratory Number.	Material and Brand from Label.	Manufacturer or Wholesaler.	Retail Dealer or Party Who Sent Sample for Analysis.
12449	Peas, Amato.....	Thomas & Howard Co., Durham, N. C.	Pickett & Williams, Durham, N. C.
12423	Peas, Brillat.	Williams, R. C., & Co., New York, N. Y.	Martin Brunjes, Wilmington.....
12434	Peas, Royal Scarlet.....	do.....	James F. Parrott & Bro., Kinston.
12436	Peas, Celeste.....	do.....	J. C. Helms, Morehead City.....
12440	Peas, Royal Arms.....	do.....	Gaston G. Levy & Bro., Rocky Mount.
12442	Peas, Duraix.....	do.....	Barnes-Graves Grocery Co., Wilson.
12448	Peas, Amato.....	do.....	Perry Grocery Co., Durham.
12451	Peas, Ferrier.....	do.....	S. C. Scott & Co., Greensboro.....
12443	Peas, Rodier.....	do.....	Strickland & Lewis, Wilson.....

RICE.

A large percentage of the rice on the market is coated or polished with glucose and talc.

Under the National Food Law, and the regulations of the United States Department of Agriculture, the use of talc and glucose as a coating for rice, in interstate commerce, is permitted, provided that the

RESULTS OF THE EX

Laboratory Number.	Material and Brand from Label.	Manufacturer or Wholesaler.	Retail Dealer or Party Who Sent Sample for Analysis.
12544	Rice, Nogara.....	Aragon Coffee Co., Richmond, Va.	A. L. Finley, Marion.....
12542	Rice, Carolina.....	Carolina Rice Co., Goldsboro, N. C.	D. W. Hardee, Greenville.....
12546	Rice, Imperial.....	do.....	C. E. Davis, Mount Airy.....
12537	Rice, Hotel Astor.....	Fisher, B., & Co., New York, N. Y.	Potter Bros., Beaufort.....
12539	do.....	do.....	Walter Credle, Washington.....
12545	Rice, Queen Quality.....	do.....	F. M. Moore, Mount Airy.....
12541	Rice.....	Gill, James G., Co., Norfolk, Va.	J. E. Williams, Greenville.....
12536	Rice, Domino.....	Goldsmith, Ralph, Co., New Orleans, La.	J. G. Jacobs, Laurinburg.....
10361	Rice, Monitor.....	Hall & Bass, Norfolk, Va.	A. J. Ward, Edenton.....
12538	Rice, Premier.....	Leggett, Francis H., & Co., New York, N. Y.	C. V. McGehee, New Bern.....
12543	Rice, Carolina.....	Wagner, F. W., & Co., Charleston, S. C.	Sherrill & Reese, Statesville.....
12540	Rice, Royal Scarlet.....	Williams, R. C., & Co., New York, N. Y.	J. M. LeRoy, Elizabeth City.....

OF CANNED PEAS—*Continued.*

Laboratory Number.	Adulterants.	Remarks and Conclusions.
12449	Copper.....	Canned peas, artificially colored with copper sulphate, a poisonous substance; adulterated; sale illegal.
12423	...do.....	do.
12434	None found.....	Canned peas.
12436	Copper.....	Canned peas, colored with copper sulphate, a poisonous substance; adulterated; sale illegal.
12440	...do.....	do.
12442	...do.....	do.
12448	...do.....	do.
12451	...do.....	do.
12443	...do.....	do.

label of each package bears the following statement: "Coated with glucose and talc. Remove by washing."

Rice coated with glucose and talc, to comply with the requirements of the law must show that the rice is coated, and that same can be removed by washing.

Twelve samples of rice were examined, only one of which was found to be coated without the fact being stated on the label. Five samples were found to be uncoated.

AMINATION OF RICE.

Laboratory Number.	Test for Glucose.	Test for Talc.	Remarks and Conclusions.
12544	Positive....	Positive....	Rice, coated with glucose and talc. Fact was not stated on the label. Adulterated and misbranded; sale illegal.
12542	...do.....	...do.....	Rice, coated with glucose and talc.
12546	...do.....	...do.....	do.
12537	Negative....	Negative....	Rice, uncoated.
12539	...do.....	...do.....	do.
12545	Negative....	...do.....	do.
12541	Positive....	Positive....	Rice, coated with glucose and talc.
12536	...do.....	...do.....	do.
10361	...do.....	...do.....	do.
12538	Negative....	Negative....	Rice, uncoated.
12543	...do.....	...do.....	do.
12540	Positive....	Positive....	Rice, coated with glucose and talc.

SWEET OIL AND SWEET OIL SUBSTITUTES.

Sweet oil is olive oil. Any oil other than olive oil branded sweet oil would be misbranded. It is not correct to label cotton-seed oil sweet oil, and elsewhere on the label describe the true character of the oil. The Department does not wish to in any way discriminate against cotton-seed oil, for it is a good, wholesome food product, and justly deserves the good name it bears; but it is not sweet oil, and cannot be legally sold as such.

RESULTS OF THE EXAMINATION OF SWEET

Laboratory Number.	Material and Brand from Label.	Manufacturer or Wholesaler.	Retail Dealer or Party Who Sent Sample for Analysis.
12142	Sweet oil.....	Bailey, James, & Sons, Baltimore, Md.	E. Clarke, Weldon.....
11392	do.....	do.....	C. D. Carstarphen, Williamston..
11368	do.....	Bellamy, Robert R., Wilmington, N. C.	G. D. Woedse, Wilmington.....
12150	do.....	Burwell-Dunn Co., Charlotte, N. C.	R. M. Stroup, Bessemer City....
12151	do.....	Cabarrus Drug Co., Concord, N. C.	Cabarrus Drug Co., Concord.....
11379	Sweet Oil, Keller's Peerless.	Carr, Owens & Co., Baltimore, Md.	J. Broughton & Bro., Hertford...
12141	do.....	do.....	J. C. Moore & Bros. Co., Whitakers.
11385	do.....	do.....	L. S. Landing, Plymouth.....
11386	do.....	do.....	A. T. Gaylord & Co., Plymouth..
11387	do.....	do.....	W. H. Hampton & Son, Plymouth.
11389	do.....	do.....	Clyde Cahoon, Plymouth.....
11390	do.....	do.....	Williford & Campbell, Plymouth..
11395	do.....	do.....	W. H. Johnson, Greenville.....
11380	Sweet Oil, C. C. C.	Clotworthy Chemical Co., Baltimore, Md.	M. S. Gregory & Co., Hertford...
11396	do.....	do.....	W. E. Warren, Tarboro.....
11402	Sweet Oil, Phoenix.....	Crawford, W. H., Co., Baltimore, Md.	J. D. Williams, Wilson.....
11398	Sweet Oil, Dove.....	Frank Tea and Spice Co., Cincinnati, Ohio.	F. Y. Arrington, Rocky Mount...
12146	do.....	do.....	J. E. Perryman, High Point.....
12145	do.....	do.....	J. S. Kirley, High Point.....
11401	Sweet Oil, No. 10.....	Gilbert Bros. & Co., Baltimore, Md.	G. F. Jones, Rocky Mount.....
11384	Sweet Oil.....	do.....	M. P. Gallop Co., Elizabeth City..
11372	Sweet Oil, No. 7.....	do.....	W. H. Hilliard, Morehead City...
11375	Sweet Oil, No. 10.....	do.....	E. K. Willis, Washington.....
11399	do.....	do.....	H. C. Joyner, Rocky Mount.....
12154	Sweet Oil.....	Hand, W. L., & Co., Charlotte, N. C.	J. P. Beaty & Son, Charlotte.....
12226	Sweet Oil, Hite's.....	Hite, S. P., Co., Roanoke, Va.....	G. C. Lovill Co., Mount Airy.....
12152	Sweet Oil.....	Hornets Nest Liniment Co., Charlotte, N. C.	Elliott & Sever, Charlotte.....
12143	Sweet Oil, Justice's.....	Justice Drug Co., Greensboro, N. C.	W. T. Sockwell, Greensboro.....
12155	Sweet Oil, McNeal's.....	Kent Drug Co., Baltimore, Md.....	W. N. Pinkston, Wadesboro.....
12149	do.....	do.....	R. L. Wycoff, Lincolnton.....
11367	Sweet Oil, Standard.....	do.....	W. T. Buchanan, Sanford.....

During the year, 58 samples sold as sweet oil have been examined, 20 of which were misbranded, and sold in violation of the law.

When the first examination of so-called sweet oils was made, three years ago, practically all of it offered for sale in the State was misbranded. It is but just to say that most of the samples reported here misbranded were old samples, and the manufacturers generally are complying with the law in the branding of sweet oil and substitutes for the same.

OIL AND SWEET OILS SUBSTITUTES.

Laboratory Number.	Halphen Test for Cotton-seed Oil.	Bandaui Test for Sesame Oil.	Reading Refractometer, 15.5°C.	Refractive Index.	Specific Gravity, 15.5°C.	Remarks and Conclusions.
12142	Positive....	Negative....	73.3	1.4744	0.9220	Cotton-seed oil; misbranded; is branded sweet oil; sale illegal.
11392	...do.....	.....	73.5	1.4745	.....	do.
11368	...do.....	.....	73.5	1.4745	.....	Cotton-seed oil; misbranded; sale illegal. Conflicting statement on bottle and carton.
12150	...do.....	Negative....	73.3	1.4744	0.9222	Cotton-seed oil, misbranded; sale illegal. Is branded sweet oil.
12151	...do.....	...do.....	73.3	1.4744	0.9209	do.
11379	Negative....	.....	66.7	1.4702	.....	Sweet oil.
12141	...do.....	Negative....	68.3	1.4712	0.9171	do.
11385	...do.....	.....	66.5	1.4701	.....	do.
11386	...do.....	.....	66.5	1.4701	.....	do.
11387	...do.....	.....	66.5	1.4701	.....	do.
11389	...do.....	.....	66.5	1.4701	.....	do.
11390	...do.....	.....	66.5	1.4701	.....	do.
11395	...do.....	.....	67.0	1.4704	.....	do.
11380	...do.....	.....	67.5	1.4707	.....	do.
11396	...do.....	.....	67.8	1.4709	.....	do.
11402	...do.....	.....	68.5	1.4713	.....	do.
11398	...do.....	.....	67.5	1.4707	.....	do.
12146	...do.....	Negative....	68.3	1.4712	0.9157	do.
12145	...do.....	...do.....	68.3	1.4712	0.9157	do.
11401	...do.....	.....	66.5	1.4701	.....	do.
11384	Positive....	.....	73.0	1.4742	.....	Cotton-seed oil, sold as sweet oil; misbranded; sale illegal.
11372	Negative....	.....	67.5	1.4707	.....	Sweet oil.
11375	...do.....	.....	67.3	1.4706	.....	do.
11399	...do.....	.....	68.0	1.4710	.....	do.
12164	Positive....	Negative....	73.3	1.4744	0.9264	Cotton-seed oil, sold as sweet oil; misbranded; sale illegal.
12226	Negative....	...do.....	68.4	1.4713	0.9157	Sweet oil.
12152	Positive....	...do.....	73.3	1.4744	0.9212	Cotton-seed oil, sold as sweet oil; misbranded; sale illegal.
12143	...do.....	...do.....	73.3	1.4744	0.9220	do.
12155	Negative....	...do.....	68.3	1.4712	0.9158	Sweet oil.
12149	...do.....	...do.....	68.3	1.4712	0.9150	do.
11367	...do.....	.....	67.0	1.4704	.....	do.

RESULTS OF THE EXAMINATION OF SWEET

Laboratory Number.	Material and Brand from Label.	Manufacturer or Wholesaler.	Retail Dealer or Party Who Sent Sample for Analysis.
11374	Sweet Oil, Our Perfection.....	Loewy Drug Co., Baltimore, Md.....	J. B. Morton, Morehead City.....
11373	do.....	do.....	Klein Bros., Morehead City.....
11394	do.....	do.....	Harrison Bros. & Co., Williamston..
11393	do.....	do.....	C. D. Carstarphen, Williamston..
11391	do.....	do.....	Theo Roberson, Williamston.....
11388	do.....	do.....	H. L. Spruill, Plymouth.....
11370	Sweet Oil, Reliable.....	McCormick & Co., Baltimore, Md.....	Lenoir Supply Co., LaGrange.....
12222	Sweet Oil.....	Owens Drug Co., Winston-Salem, N. C.	C. E. Knouse, Winston-Salem.....
12221	do.....	do.....	Center Mercantile Co., Winston-Salem.
12153	do.....	Scott, John M., & Co., Charlotte, N. C.	H. M. Parker, Charlotte.....
12148	do.....	Smith, Dr. T. C., Asheville, N. C.....	D. K. Collins, Bryson City.....
11371	Sweet Oil, Old Homestead.....	Southern Drug Co., Norfolk, Va.....	K. Guthrie, Morehead City.....
11381	Sweet Oil, Standard.....	Standard Drug Co., Elizabeth City, N. C.	J. M. LeRoy, Elizabeth City.....
11378	do.....	do.....	Divers & Raper, Hertford.....
11377	do.....	do.....	L. C. Marriner, Mackeys Ferry....
11376	do.....	do.....	F. S. Terrell, Belhaven.....
11397	Sweet Oil, Purl.....	Suffolk Drug and Extract Co., Suffolk, Va.	D. F. Bridgers, Tarboro.....
11382	do.....	do.....	A. B. Seeley & Son, Elizabeth City
11383	do.....	do.....	Morgan & Parker, Elizabeth City.
12227	Sweet Oil.....	Surry Drug Co., Elkin, N. C.....	Holcomb Bros. Co., Elkin.....
12144	Sweet Oil, 20th Century.....	Terry-Taylor Drug Co., Norfolk, Va.	W. T. Sockwell, Greensboro.....
11369	Sweet Oil.....	do.....	W. D. Creech, Goldsboro.....
12223	do.....	Thompson, P. A., Winston-Salem, N. C.	G. L. Sprouse, Winston-Salem....
12147	Sweet Oil, Our Seal.....	Vaughn-Crutchfield Co., Winston-Salem, N. C.	Russell & Hudson, Salisbury.....
12224	do.....	do.....	Meador Supply Co., Madison.....
12225	Sweet Oil, Pilot.....	Winston Drug Co., Winston-Salem	Madison Grocery Co., Madison....
11432	Sweet Oil.....	do.....	L. M. McCormick, Asheville.....

VANILLA EXTRACTS AND VANILLA EXTRACT SUBSTITUTES.

Vanilla extract is the flavoring extract prepared from vanilla bean, with or without sugar or glycerin, and contains in one hundred cubic centimeters (100cc.) the soluble matters from not less than ten (10) grams of the vanilla bean.

The adulterants of vanilla extract are tonka bean extract, artificial vanillin, artificial coumarin, caramel, and coal-tar colors. Artificial vanillin is the same as the chief flavoring principle of the vanilla bean, but the extract made from this substance lacks the flavor of genuine

OIL AND SWEET OILS SUBSTITUTES—*Continued.*

Laboratory Number.	Halphen Test for Cotton-seed Oil.	Baudouin Test for Sesame Oil.	Reading Refractometer, 15.5°C.	Refractive Index.	Specific Gravity, 15.5°C.	Remarks and Conclusions.
11374	Negative		67.5	1.4707		Sweet oil.
11373	do		68.0	1.4710		do.
11394	do		67.0	1.4704		do.
11393	do		67.0	1.4704		do.
11391	do		66.5	1.4701		do.
11388	do		67.0	1.4704		do.
11370	do		68.2	1.4711		do.
12222	do	Negative	68.4	1.4713	0.9163	do.
12221	do	do	68.4	1.4713	0.9161	do.
12153	do	do	68.3	1.4712	0.9172	do.
12148	Positive	do	73.3	1.4744	0.9200	Cotton-seed oil, sold as sweet oil; misbranded; sale illegal.
11371	do		73.3	1.4744		do.
11381	Negative		67.5	1.4707		Sweet oil.
11378	do		68.0	1.4710		do.
11377	do		67.5	1.4707		do.
11376	do		67.5	1.4707		do.
11397	Positive		74.0	1.4748		Cotton-seed oil, sold as sweet oil; misbranded; sale illegal.
11382	do		73.0	1.4742		do.
11383	do		74.0	1.4748		do.
12227	do	Negative	73.4	1.4744		do.
12144	do	do	73.3	1.4744	0.9227	do.
11369	do		74.0	1.4748		do.
12223	do	Negative	73.4	1.4744	0.9220	do.
12147	do	do	73.3	1.4744	0.9227	do.
12224	do	do	73.4	1.4744	0.9209	do.
12225	do	do	74.4	1.4750	0.9252	do.
11432	do					Cotton-seed oil, and not sweet oil as represented.

vanilla extract, owing to the absence of other substances, which cannot be successfully imitated. Tonka beans are much cheaper than vanilla beans and have a ranker and more stringent flavor, due to coumarin, which is also prepared artificially for use in extracts.

Under this head 93 samples were examined, 19 of which were found to be adulterated, misbranded, or misrepresented by the dealer, and were sold in violation of the law.

The results of the examination and the conclusions drawn from same are published in the table below, and by reference to same the character of the adulteration and misbranding can be noted.

RESULTS OF THE EXAMINATION OF VANILLA

Laboratory Number.	Material and Brand from Label.	Manufacturer or Wholesaler.	Retail Dealer or Party Who Sent Sample for Analysis.
10720	Compound Vanilla.....	Ahrans Bros., Wilmington, N. C.	Holden & Tripp, Wilmington...
12177	Vanilla Compound, Colonial.....	Asheville Wholesale Drug Co., Asheville, N. C.	J. W. Massey, Bryson City.....
10726	Vanilla Extract, A. & P.	Atlantic and Pacific Tea Co., Jersey City, N. J.	A. & P. Tea Co., Greensboro....
12183	Vanilla Substitute, Crescent.....	Bastine & Co., New York, N. Y.	S. H. Youngblood, Charlotte...
12184	Vanilla Extract.....	.....	do.....
11722	Vanilla Substitute, Bear.....	Bear-Lewis Drug Co., Pensacola, Fla.	Leichenstein, D., Co., Tarboro...
10419	Extract Vanilla.....	Bellamy, Robert R., Wilmington, N. C.	G. T. Walton & Son, Jacksonville.
11720	Vanilla Extract.....	Bodeker Drug Co., Richmond, Va.	Anderson, Crawford & Co., Williamston.
12166	do.....	do.....	R. S. Wells, Elm City.....
10756	do.....	Brame Drug Co., North Wilkesboro, N. C.	Smithy's Cheap Store, North Wilkesboro.
10757	Vanilla Flavoring, Brame's.....	do.....	J. T. Hubbard & Son, North Wilkesboro.
10758	Vanilla Extract.....	do.....	C. D. Linderman, North Wilkesboro.
11709	Vanilla Extract, Eclipse.....	Brauer, Charles E., & Co., Richmond, Va.	D. J. McDuffie, Laurinburg....
12180	do.....	do.....	J. L. Allen, Rutherfordton.....
12193	do.....	do.....	Dave Henry, Rockingham.....
12582	Extract Vanilla, Lockett's.....	Bristol Drug and Gum Co., Bristol, Va.-Tenn.	The Atkinson Co., Elkin.....
11711	Vanilla Extract, Burnett's.....	Burnett, Joseph, & Co., Boston, Mass.	Holmes Grocery Co., Wilmington.
12191	Vanilla Extract Compound.....	Burwell & Dunn Co., Charlotte, N. C.	Renfrow, Barrett & Co., Matthews.
12182	Extract Vanilla and Tonka...	Cabarrus Drug Co., Concord, N. C.	Lippard & Barrier, Concord....
12175	Vanilla Flavor, Artificial.....	Central Pharmacal Co., Hickory, N. C.	Harris & Little, Hickory.....
12178	Extract Vanilla, Crown.....	Chatham Drug Co., Knoxville, Tenn.	B. L. Badgett Coöperative Store, Andrews.
10729	Vanilla Extract, Mammy's.....	Christian Bros. & Co., Richmond, Va.	Meador Supply Co., Madison...
11721	Vanilla, Imi., Victor.....	Clotworthy Chemical Co., Baltimore, Md.	O. O. Boykin, Tarboro.....
11718	Vanilla Extract, Colgate's.....	Colgate & Co., New York, N. Y.	Morgan & Parker, Elizabeth City.
11707	do.....	do.....	J. H. Monger, Sanford.....
11712	Vanilla, Phoenix.....	Crawford, W. H., Baltimore, Md.	Southern Grocery Co., Wilmington.
12172	Imitation Vanilla Extract.....	Crown Chemical Co., Baltimore, Md.	J. G. Williams, Chapel Hill....
12585	Imitation Vanilla Flavoring, Crown.	do.....	C. H. Pettigrew, Reidsville....
10728	Imitation Vanilla Extract, Swann.	Cumberland Mfg. Co., Nashville, Tenn.	J. A. Iseley & Bro. Co., Burlington.

EXTRACTS AND VANILLA EXTRACT SUBSTITUTES.

Laboratory Number.	Total Solids—Per Cent.	Ash—Per Cent.	Lead Number, Normal (Wincon).	Vanillin—Per Cent.	Coumarin.	Specific Gravity, 15.6°C.	Alcohol, by Volume—Per Cent.	Remarks and Conclusions.
10720	3.55	0.13	0.25	0.30	Present...	0.9778	36.72	Compound vanilla extract.
12177	7.77	0.05	0.06	0.67	Present...	1.0077	-----	Compound vanilla extract. Branded "Colonial Ess. Vanilla Co."; misbranded; sale illegal.
10726	10.45	0.24	0.33	0.15	None-----	0.9889	40.66	Vanilla extract.
12183	19.00	0.08	0.09	0.24	Present...	1.0491	15.20	Imitation vanilla extract.
12184	13.80	0.16	0.08	0.18	None-----	1.0235	-----	Compound vanilla extract; misbranded; sale illegal.
11722	12.80	0.05	0.14	0.40	Present...	1.0417	9.00	Imitation vanilla flavoring.
10419	22.43	0.13	0.09	0.20	Present...	1.0778	14.80	Compound vanilla extract. Contains contradictory statements on carton and bottle; misbranded; sale illegal.
11720	7.99	0.32	0.34	0.13	None-----	0.9628	44.72	Vanilla extract.
12166	9.11	0.38	0.58	0.22	None-----	0.9674	42.40	do.
10756	11.48	0.04	0.02	0.40	Present...	1.0321	10.64	Imitation vanilla extract; misbranded and misrepresented; sale illegal.
10757	-----	-----	0.22	0.40	Present...	-----	-----	Imitation vanilla extract; misbranded; sale illegal.
10758	-----	-----	-----	-----	Present...	-----	-----	Imitation vanilla extract; adulterated and misbranded; sale illegal.
11709	5.86	0.33	0.87	0.10	None-----	0.9796	34.34	Vanilla extract.
12180	-----	0.35	0.50	0.20	None-----	0.9796	32.80	do.
12193	11.79	0.41	0.44	0.31	None-----	0.9931	35.30	do.
12582	15.40	0.37	0.64	0.38	None-----	-----	22.20	do.
11711	9.00	0.39	0.44	0.18	None-----	0.9917	37.16	do.
12191	13.05	0.66	0.61	0.22	Present...	1.0215	24.00	Compound vanilla extract.
12182	24.30	0.15	0.07	0.44	Present...	1.0714	16.90	Compound vanilla extract. Is branded "Extract vanilla with tonka"; misbranded; sale illegal.
12175	12.44	0.05	0.02	0.50	Present...	1.0400	-----	Imitation vanilla extract.
12178	1.73	0.02	0.14	0.12	None-----	0.9182	56.10	Imitation vanilla extract; misbranded; sale illegal.
10729	8.32	0.13	0.05	0.10	None-----	1.0235	8.10	do.
11721	14.17	0.03	0.01	0.35	Present...	1.0434	10.78	Imitation vanilla flavoring. Word imitation should be written out in full.
11718	9.11	0.21	0.40	0.15	None-----	0.9452	58.62	Vanilla extract.
11707	10.96	0.30	0.62	0.13	None-----	1.0005	33.96	do.
11712	15.25	0.49	0.66	0.13	None-----	1.0049	42.95	do.
12172	18.55	0.08	0.14	0.16	Present...	1.0639	-----	Imitation vanilla extract.
12585	18.70	0.09	0.08	0.15	Present...	-----	3.98	do.
10728	14.24	0.04	0.06	0.25	Present...	1.0338	19.70	do.

RESULTS OF THE EXAMINATION OF VANILLA EX

Laboratory Number.	Material and Brand from Label.	Manufacturer or Wholesaler.	Retail Dealer or Party Who Sent Sample for Analysis.
12176	Extract Vanilla.....	Cumberland Mfg. Co., Nashville, Tenn.	A. W. Grayson, Marion.....
10753	Vanilla Extract, Crest.....	DePugh, E. D., & Co., New York, N. Y.	A. P. Grizzard, Winston-Salem..
12577	do.....	do.....	do.....
10944	Extract Vanilla, Diewald's.....	Devault, C. W., Asheville, N. C.....	.....
12192	Vanilla, Stag.....	Druid Mfg. Co., Baltimore, Md.....	W. L. McCall & Co., Matthews..
11710	Vanilla Extract, Helmet.....	Durkee, E. R., & Co., New York, N. Y.	H. H. Woedse, Wilmington.....
12167	Vanilla, Gilbert's Premium No. 5.	Gilbert Bros. & Co., Baltimore, Md.	G. F. Tucker & Co., Whitakers..
11719	Vanilla Extract, Pure Quality.	Gill, James G., Co., Norfolk, Va.....	A. T. Gaylord, Plymouth.....
10248	Vanilla and Vanillin.....	Goldsboro Drug Co., Goldsboro, N. C.	J. B. Watson, Goldsboro.....
10732	Vanilla Compound.....	Grissom Drug Co., Greensboro, N. C.	Grissom Drug Co., Greensboro..
10722	Vanilla Extract, Romeo.....	Hall, H. R., Co., Chicago, Ill.....	O. F. Pearce, Greensboro.....
11717	Vanilla Extract, White Cap....	Heekin Spice Co., Cincinnati, Ohio.	Morgain & Parker, Elizabeth City
10730	Vanilla Extract, Hite's.....	Hite, S. P., & Co., Roanoke, Va.....	E. M. Towns, Reidsville.....
10731	do.....	do.....	Sam Watkins, Reidsville.....
12581	do.....	do.....	A. Valentine, Mount Airy.....
12185	Vanilla Compound.....	Hornet's Nest Liniment Co., Char- lotte, N. C.	Sidney Swain, Charlotte.....
12174	Vanillin and Coumarin, Red Mill.	Howard Drug and Medicine Co., Baltimore, Md.	J. C. Gemayel, Newton.....
10725	Imitation Vanilla, Gold Medal	Interstate Commerce Co., Rich- mond, Va.	C. J. Fogleman, Greensboro....
11708	Vanilla Extract, McNeill Standard.	Kent Drug Co., Baltimore, Md.....	W. T. Buchanan, Sanford.....
12576	Extract Vanilla, Nabob.....	Leggett, Francis H., & Co., New York, N. Y.	W. L. London, Pittsboro.....
10338	Vanilla Extract, Perfection.....	Loewy Drug Co., Baltimore, Md.....	J. F. Bishop, Belhaven.....
10237	Vanilla Extract, Clover.....	McCormick & Co., Baltimore, Md.....	F. E. Barnes, Goldsboro.....
12578	Vanilla Extract, Bee.....	McCormick & Co., New York, N. Y.	A. P. Grizzard, Winston-Salem..
11715	Vanilla Extract, Miller's.....	Miller Mfg. Co., New York, N. Y.....	E. B. Hackburn, New Bern....
11716	Vanilla Substitute, Gold Arrow.	Newton Tea and Spice Co., Cin- cinnati, Ohio.	J. P. Jackson, Washington.....
10325	Vanilla and Vanillin.....	do.....	do.....
10723	Vanilla Extract, Newton's Very Best.	do.....	J. R. Christian & Bro., Greens- boro.
10724	Imitation Vanilla, King Kotton.	do.....	G. W. Whittington Co., Greens- boro.
11706	Vanilla Extract, Red Seal.....	do.....	George E. Daniels, Goldsboro..
11713	Vanilla Extract.....	Owens & Minor Drug Co., Rich- mond, Va.	B. F. Powell, Clinton.....
10289	Vanilla Extract, A. A.....	Parke, L. H., & Co., Philadelphia, Pa.	Henry French, Kinston.....
11723	Vanilla Extract, Choice.....	Parke, L. H., & Co., Philadelphia, Pa.	J. W. Riley, Wilson.....
10747	Vanilla Extract.....	do.....	L. A. Andrews, Greensboro.....
12171	Vanilla Compound, Peabody.	Peabody Drug Co., Durham, N. C.	A. W. Cain & Co., East Durham

TRACTS AND VANILLA EXTRACT SUBSTITUTES—*Continued.*

Laboratory Number.	Total Solids—Per Cent.	Ash—Per Cent.	Lead Number, Normal (Winton).	Vanillin—Per Cent.	Coumarin.	Specific Gravity, 15.6°C.	Alcohol, by Volume—Per Cent.	Remarks and Conclusions.
12176	-----	0.28	0.57	0.22	None	0.9803	36.30	Vanilla extract
10753	13.76	0.34	0.39	0.15	None	1.0151	32.48	do.
12577	14.70	0.43	0.55	0.19	None	-----	15.90	do.
10944	28.36	0.12	0.16	0.10	None	-----	-----	Vanilla extract, below standard; sale illegal.
12192	36.60	0.10	0.24	0.53	None	1.1356	10.45	Compound vanilla extract; misbranded; sale illegal.
11710	11.20	0.24	0.44	0.14	None	1.0070	31.92	Vanilla extract.
12167	21.43	0.45	0.68	0.33	None	1.0306	-----	do.
11719	12.60	0.27	0.38	0.20	None	0.9942	42.58	do.
10248	8.44	0.06	0.10	0.13	Present	1.0112	15.84	Imitation extract of vanilla.
10732	8.68	0.03	0.10	0.35	Present	1.0077	23.66	Compound extract of vanilla.
10722	8.16	0.30	0.43	0.13	None	0.9838	35.08	Vanilla extract.
11717	21.62	0.28	0.43	0.15	None	1.0370	42.58	do.
10730	13.67	0.35	-----	0.10	None	-----	-----	do.
10731	20.38	0.39	0.49	0.13	None	1.0168	47.16	do.
12581	26.70	-----	0.63	0.44	None	1.0267	-----	Vanilla extract, vanillin added.
12185	12.26	0.15	0.09	0.56	Present	1.0173	24.30	Compound vanilla extract.
12174	7.53	0.04	0.05	0.62	Present	0.9991	-----	Imitation vanilla extract.
10725	20.00	0.04	0.01	0.40	Present	1.0697	11.10	Imitation vanilla flavoring.
11708	19.36	0.37	0.59	0.08	None	1.0413	32.30	Vanilla extract.
12576	19.70	0.32	0.41	0.24	None	1.0179	20.06	do.
10338	15.62	0.31	0.62	0.13	None	1.0220	-----	do.
10237	20.30	0.24	0.28	0.14	None	1.0263	41.74	do.
12578	22.80	0.36	0.48	0.27	None	1.0362	18.10	do.
11715	-----	0.30	0.40	0.22	None	1.0179	23.74	do.
11716	10.38	0.26	0.25	0.40	None	1.0211	16.90	Compound vanilla flavoring.
10325	13.37	0.16	0.14	0.35	None	1.0419	13.39	Vanilla and vanillin.
10723	22.59	0.34	0.62	0.10	None	1.0341	42.90	Vanilla extract.
10724	14.33	0.07	0.03	0.36	Present	1.0176	17.40	Imitation vanilla extract.
11706	24.62	0.42	0.62	0.13	None	1.0455	41.98	Vanilla extract.
11713	22.46	0.34	0.60	0.13	None	1.0372	40.48	do.
10289	17.05	0.30	0.35	0.20	None	1.0090	43.15	do.
11723	16.66	0.28	0.27	0.15	None	1.0153	39.56	do.
10747	24.28	0.59	0.67	0.35	None	1.0570	30.98	do.
12171	12.45	0.20	0.43	0.65	Present	1.0165	25.40	Compound vanilla extract.

RESULTS OF THE EXAMINATION OF VANILLA EX

Laboratory Number.	Material and Brand from Label.	Manufacturer or Wholesaler.	Retail Dealer or Party Who Sent Sample for Analysis.
12170	Vanilla Extract, Votan.....	Reiley-Taylor Co., New Orleans, La.	Barbee & Elliott, Durham.....
10749	Vanilla Compound, Best by Test.	Sampson Medicine Co., Winston-Salem, N. C.	Swaim & Swaim, Winston-Salem.
10751	do.....	do.....	Myers Grocery Co., Winston-Salem.
12583	Extract Vanilla, Best by Test.....	do.....	W. W. Whitaker, Elkin.....
12584	do.....	do.....	J. T. Angell, Mocksville.....
10224	Vanilla Extract, Sauer's.....	Sauer, C. F., & Co., Richmond, Va.	J. G. Derr, Goldsboro.....
12181	Vanilla Extract, Scott's.....	Scott, John M., & Co., Charlotte, N. C.	Kiser & Mauncy, Kings Mountain.
12186	do.....	do.....	E. L. Riles, Charlotte.....
12187	Vanilla Flavoring.....	do.....	W. A. Noman, Charlotte.....
10350	Vanillin Compound.....	Standard Drug Co., Elizabeth City, N. C.	W. W. Tarkington, Belhaven...
11714	Imitation Vanilla, Purl.....	Suffolk Drug and Extract Co., Suffolk, Va.	Elmer Nichols, Morehead City..
12179	Vanilla Extract, 20th Century	Terry-Taylor Drug Co., Norfolk, Va.	C. C. Young, Brevard.....
12169	Vanilla Extract, Van Duzer's.	Van Duzer Extract Co., New York, N. Y.	Patterson Bros. Co., Durham..
10267	Vanilla Compound, Our Seal.	Vaughn-Crutchfield Co., Winston-Salem, N. C.	E. E. Rouse, LaGrange.....
10268	do.....	do.....	do.....
10727	Imitation Vanilla Extract.....	do.....	Vogler & Hegee, Waughtown...
10748	Vanilla Flavor, Our Seal.....	do.....	E. L. Vogler & Co., Winston-Salem.
10750	Vanilla Extract.....	do.....	C. E. Knouse & Co., Winston-Salem.
10752	Vanilla Extract, Our Seal.....	do.....	P. W. Mock, Winston-Salem...
10754	do.....	do.....	Farmers Trade House, Winston-Salem.
10755	Imitation Vanilla, Our Seal.....	do.....	do.....
12168	Vanilla Extract, Our Seal.....	do.....	L. Thomas, Oxford.....
12173	do.....	do.....	Brown-Southern Grocery Co., High Point.
12575	Conc. Vanilla, Our Seal.....	do.....	L. Thomas, Oxford.....
12579	Pure Vanilla, Our Seal.....	do.....	Farmers Trade House Co., Winston-Salem.
12580	do.....	do.....	Efird Bros., Winston-Salem...
11724	Vanilla Extract, We-Li-Ka....	We-Li-Ka Mfg. Co., Memphis, Tenn.	J. F. Powell, Fayetteville.....
12188	Vanilla Extract, Hoyt's.....	Webb Mfg. Co., Nashville, Tenn.	R. A. Duncan, Charlotte.....
12189	Extract Vanilla, Webb's.....	do.....	C. D. Kenny Co., Charlotte...
12190	Imitation Vanilla, Anchor.....	do.....	do.....

TRACTS AND VANILLA EXTRACT SUBSTITUTES—*Continued.*

Laboratory Number.	Total Solids—Per Cent.	Ash—Per Cent.	Lead Number, Normal (Winton).	Vanillin—Per Cent.	Coumarin.	Specific Gravity, 15.6°C.	Alcohol, by Volume—Per Cent.	Remarks and Conclusions.
12170	11.66	0.25	0.64	0.27	None.....	1.0023	33.60	Vanilla extract.
10749	35.82	0.15	0.15	0.40	Present...	1.1252	10.48	Vanilla compound. Statement on label, "Best by test," misleading and untrue.
10751	-----	-----	-----	-----	Present.....	-----	-----	do.
12583	33.40	0.13	0.20	0.42	Present...	1.1145	4.49	Compound vanilla extract; misbranded; sale illegal.
12584	35.30	0.15	0.24	0.43	Present...	1.1169	6.37	do.
10224	20.49	0.32	0.32	0.13	None.....	1.0420	34.32	Vanilla extract.
12181	13.24	0.27	0.37	0.24	None.....	1.0005	47.80	do.
12186	13.00	0.37	0.35	0.36	None.....	0.9818	47.30	do.
12187	-----	-----	0.45	-----	-----	0.9838	45.80	do.
10350	10.56	0.05	0.14	0.35	Present...	1.0274	11.80	Imitation vanilla flavoring.
11714	6.86	0.05	0.22	0.35	Present...	1.0150	13.80	do.
12179	5.58	0.01	0.13	0.13	None.....	0.9958	21.40	Vanilla extract, below standard; sale illegal.
12169	19.29	0.34	0.69	0.38	None.....	1.0023	34.60	Vanilla extract.
10267	23.56	0.13	0.22	0.40	Present...	1.0566	-----	Compound vanilla extract.
10268	19.67	0.14	0.11	0.40	Present...	1.0457	16.75	do.
10727	12.27	0.07	0.07	0.40	Present...	1.0220	13.80	Imitation vanilla extract.
10748	16.04	0.07	0.09	0.40	Present...	1.0312	14.18	Imitation vanilla extract; misbranded; sale illegal.
10750	-----	-----	-----	-----	Present.....	-----	-----	Compound extract of vanilla; adulterated and misbranded; sale illegal.
10752	15.97	0.09	-----	0.35	Present...	-----	-----	Compound extract of vanilla; misbranded; sale illegal.
10754	18.54	0.27	-----	0.10	None.....	1.0321	12.92	Extract vanilla.
10755	-----	0.06	-----	0.40	Present...	-----	-----	Imitation vanilla extract.
12168	18.32	0.10	0.24	0.47	None.....	1.0362	12.00	Compound vanilla extract; misbranded; sale illegal.
12173	17.09	0.01	0.15	0.68	Present...	1.0364	12.20	do.
12575	16.30	0.09	0.17	0.39	Present...	1.0321	6.40	Imitation vanilla extract; misbranded; sale illegal.
12579	15.30	0.30	0.31	0.19	None.....	0.9723	27.30	Is labeled "Vanilla"; should be labeled "Vanilla extract."
12580	15.00	0.24	0.30	0.22	None.....	0.9722	27.50	do.
11724	10.37	0.27	0.48	0.15	None.....	0.9889	37.75	Vanilla extract.
12188	12.53	0.36	0.37	0.31	None.....	0.9997	37.30	do.
12189	12.60	0.31	0.57	0.28	None.....	0.9985	37.30	do.
12190	6.25	0.07	0.08	0.38	Present...	1.0083	11.20	Imitation vanilla extract.

VINEGAR AND VINEGAR SUBSTITUTES.

VINEGAR STANDARDS.

Vinegar is the product made by the alcoholic and subsequent acetous fermentation of the juice of apples, and contains not less than 4.00 per cent of acetic acid, not less than 1.60 per cent of apple solids, of which not more than 50.00 per cent are reducing sugars, and not less than 0.25 per cent of apple ash.

Wine vinegar is the product made by the alcoholic and subsequent acetous fermentation of the juice of grapes, and contains not less than 4.00 per cent of acetic acid, not less than 1.00 per cent of grape solids, and not less than 0.13 per cent of grape ash.

Malt vinegar is the product made by the alcoholic and subsequent acetous fermentation, without distillation, of an infusion of barley malt or cereals whose starch has been converted by malt, is dextro-rotatory, and contains not less than 4.00 per cent of acetic acid, not less than 2.00 per cent of solids, and not less than 0.2 per cent of ash.

Spirit vinegar is the product made by the acetous fermentation of dilute distilled alcohol, and contains not less than 4.00 per cent acetic acid.

Under both the State and National Food Laws vinegar is a product of standard strength made from the juice of apples—that is vinegar, and nothing else is vinegar, and nothing else can be sold simply as vinegar. There are other products used as vinegar that can be legally sold under their own names, as malt vinegar, spirit vinegar, wine vinegar, and sugar or sirup vinegar; but they cannot be sold simply under the name vinegar.

Some of these products are good, and are just as desirable as vinegar, while others are not. To prevent the inferior ones being sold as vinegar, there must be one standard for vinegar, and other products used as

RESULTS OF THE EXAMINATION OF VINE

Laboratory Number.	Material and Brand from Label.	Sold by Retail Dealer as—	Manufacturer or Wholesaler.	Retail Dealer or Party Who Sent Sample for Analysis.
12072	Gold Seal	Vinegar.....	Alart & McGuire Co., New York, N. Y.	Willis Grocery Co., New Bern
12561	Distilled Imitation Vinegar.	do.....	do.....	C. C. Gentry & Co., Elkin....
11450	.....	.....do.....	American Fruit Products Co., Rochester, N. Y.	C. H. Borneman, Wilmington
11831	.....	.....do.....	American Commission Co., Greensboro, N. C.	A. Steinberg, Greensboro.....
11826	.....	.....do.....	do.....	Hudson Grocery Co., Greensboro.
12008	.....	.....do.....	do.....	A. Steinberg, Greensboro.....

vinegar must be sold under their own names to distinguish them from the product made from apple cider and from each other. These substitutes for vinegar are often purchased in bulk by the dealers and sold at retail in broken packages not labeled, and one of the greatest violations of the Food Law is the sale of those substitutes for vinegar as the real vinegar. In many instances manufacturers and jobbers sell retail dealers vinegar without specifying the kind of vinegar. To protect themselves against the National Food Law, they brand it spirit vinegar, compound vinegar, etc., as the case may be. The dealer receives the goods without specially noticing the label, thinking that he has vinegar, and proceeds to sell it as such, and violates the law.

Some manufacturers have criticised the State Department for objecting to the sale of these substitutes for vinegar as vinegar, and have tried to make the local dealers believe that North Carolina is the only State that objects to the sale of the substitutes as vinegar. Those manufacturers know that they are not acting honestly with the local dealer. They know they can't brand those products vinegar and ship them from one State into another, for it would be a violation of the National Law, and they would be prosecuted for the same.

Local dealers are cautioned that the sale of compound vinegar, etc., as vinegar is a violation of the law, and in the future such violations will have to be prosecuted.

During the year, 294 samples of vinegar and vinegar substitutes were examined. By reference to the table below, it will be seen that the sale of 161 of them was illegal. A few of these were illegal because they were misbranded, but most of the illegal sales were illegal because the product was misrepresented by the retail dealer and sold as vinegar when it was not vinegar, but a compound vinegar, spirit vinegar, or some other substitute for vinegar.

See results and conclusions in table below.

GAR AND SUBSTITUTES FOR VINEGAR.

Laboratory Number.	Acidity, Total—Per Cent.	Solid Matter in Solution—Per Cent.	Ash—Per Cent.	Total Sugars—Per Cent.	Non-sugar Solids—Per Cent.	Remarks and Conclusions.
12072	4.58	2.40	0.36	0.62	1.77	Vinegar.
12561	4.67	0.56	0.02	-----	-----	Spirit vinegar. Was sold by retail dealer as vinegar; sale as vinegar illegal.
11450	5.04	3.88	-----	-----	-----	Vinegar.
11831	4.26	0.38	-----	-----	-----	Spirit vinegar. Was sold by retail dealer as vinegar; sale as vinegar illegal.
11826	4.30	1.11	-----	-----	-----	Compound vinegar. Was sold by retail dealer as vinegar; sale as vinegar illegal.
12008	5.70	0.33	-----	-----	-----	Spirit vinegar. Was sold by retail dealer as vinegar; sale as vinegar illegal.

RESULTS OF THE EXAMINATION OF VINEGAR

Laboratory Number.	Material and Brand from Label.	Sold by Retail Dealer as—	Manufacturer or Wholesaler.	Retail Dealer or Party Who Sent Sample for Analysis.
12011	-----	Vinegar.-----	American Commission Co., Greensboro, N. C.	J. T. Lambert, Greensboro.---
11527	Duffy's Apple Vinegar.	-----	American Fruit Products Co., Rochester, N. Y.	Holmes Grocery Co., Wilmington.
11526	-----	Vinegar, Mott's.-----	do.-----	C. A. Montgomery, Wilmington.
11520	-----	Vinegar.-----	do.-----	J. J. Mohr, Wilmington.-----
11488	Blended Distilled and Apple Vinegar.	do.-----	Antrim, C. W., & Son, Richmond, Va	Anderson & Simpson, Haw River.
11827	Albemarle.-----	Apple Vinegar.-----	do.-----	C. Scott & Co., Greensboro.---
11491	-----	Vinegar.-----	do.-----	Sanford Supply Co., Sanford.
11484	Sugar Vinegar.-----	Sugar Vinegar.-----	do.-----	J. T. Black & Bro., Graham.---
11504	-----	Vinegar.-----	do.-----	Pace & McQueen, Maxton.---
11565	Toreador.-----	do.-----	do.-----	R. T. Willis, Morehead City.---
11557	Leslie's Cider Vinegar.	do.-----	Arthur Leslie Sauce Co., New York, N. Y.	James F. Parrott & Bro., Kinston.
11833	A. & P.-----	Cider Vinegar.-----	A. & P. Vinegar Co., Jersey City, N. J.	A. & P. Tea Co., Greensboro.---
12014	A. & P. Cider Vinegar.	Vinegar.-----	do.-----	do.-----
11601	Distilled Spirit Vinegar.	do.-----	Baltimore Mfg. Co., Baltimore, Md.	A. W. Smith, Smithfield.-----
11541	do.-----	do.-----	do.-----	J. L. Sullivan, Goldsboro.-----
12559	do.-----	do.-----	do.-----	C. L. Marshall, Mount Airy.---
12557	do.-----	do.-----	do.-----	W. F. Midkiff, Mount Airy.---
11516	Distilled Vinegar.-----	do.-----	do.-----	F. P. Lamb, Wilmington.-----
12556	Distilled Spirit Vinegar.	do.-----	do.-----	J. T. Tuttle, Walnut Cove.---
11509	do.-----	do.-----	do.-----	S. E. Sellars, Wilmington.-----
11470	do.-----	do.-----	do.-----	Ledford, Styers & Co., Rural Hall.
11467	Apple Vinegar.-----	do.-----	do.-----	Meador Supply Co., Madison.---
11561	Distilled Spirit Vinegar.	do.-----	do.-----	Fred R. Nunn, Kinston.-----
11461	-----	do.-----	Barbee & Sharpe Grocery Co., Winston-Salem, N. C.	H. H. Laberton, Winston-Salem.
11836	-----	Distilled Vinegar.	do.-----	J. P. Charles, Winston-Salem.
11517	-----	Vinegar.-----	Bear, Samuel, Sr., & Sons, Wilmington, N. C.	Wreade Bros., Wilmington.---
11514	-----	do.-----	do.-----	John G. Kuhlken, Wilmington
11549	-----	do.-----	Bentley, Shriver & Co., Baltimore, Md.	DeLeon M. Fields, LaGrange.
11511	Acme Molasses and Distilled Vinegar.	Molasses Vinegar.	do.-----	H. W. Konig, Wilmington.---
11543	-----	Vinegar.-----	Bizzell & Thornton, Goldsboro, N. C.	A. B. Smith, Goldsboro.-----
11476	White House Apple Vinegar.	do.-----	Board-Armstrong Co., Alexandria, Va.	Reidsville Grocery Co., Reidsville.
12061	Standard Red Distilled Vinegar.	do.-----	do.-----	Efrid's Department Store, Albemarle.

AND SUBSTITUTES FOR VINEGAR—*Continued.*

Laboratory Number.	Acidity, Total—Per Cent.	Solid Matter in Solution—Per Cent.	Ash—Per Cent.	Total Sugars—Per Cent.	Non-sugar Solids—Per Cent.	Remarks and Conclusions.
12011	4.50	1.42	-----	-----	-----	Vinegar, to which water had been added. It is slightly below standard; sale as vinegar illegal.
11527	5.04	3.79	-----	-----	-----	Vinegar.
11526	4.62	2.57	-----	-----	-----	do.
11520	4.63	2.93	-----	-----	-----	Vinegar, reduced to standard acidity with water.
11488	4.30	1.59	0.14	0.53	1.06	Compound vinegar, misbranded. It is labeled "blended, distilled, and apple." A blend is a mixture of like substances. These are not like substances; sale illegal.
11827	4.74	3.21	0.39	0.58	2.63	Vinegar.
11491	4.70	3.01	0.38	-----	-----	do.
11484	4.78	0.85	0.14	0.13	0.72	Sugar vinegar.
11504	4.78	2.87	0.43	-----	-----	Vinegar.
11565	4.06	0.13	-----	-----	-----	Spirit vinegar. Was sold by retail dealer as vinegar; misrepresented; sale as vinegar illegal.
11557	4.60	2.60	0.30	0.79	1.81	Vinegar.
11833	4.56	2.32	-----	-----	-----	do.
12014	4.68	3.12	-----	-----	-----	do.
11601	4.54	0.61	0.18	-----	-----	Spirit vinegar. Was sold by retail dealer as vinegar; misrepresented; sale as vinegar illegal.
11541	4.78	0.17	-----	-----	-----	do.
12559	4.30	0.43	0.07	-----	-----	do.
12557	4.00	0.78	0.09	-----	-----	do.
11516	4.10	0.21	-----	-----	-----	do.
12556	4.00	0.27	0.02	-----	-----	do.
11509	4.70	0.55	-----	-----	-----	do.
11470	4.48	0.29	-----	-----	-----	do.
11467	4.44	2.16	-----	-----	-----	Vinegar.
11561	4.36	0.19	0.03	-----	-----	Spirit vinegar. Was sold by retail dealer as vinegar; misrepresented; sale as vinegar illegal.
11461	3.42	2.46	-----	-----	-----	Vinegar, below standard in acidity; sale illegal.
11836	4.10	0.24	-----	-----	-----	Spirit vinegar.
11517	4.08	0.40	0.08	-----	-----	Spirit vinegar. Was sold by retail dealer as vinegar; misrepresented; sale as vinegar illegal.
11514	4.16	0.24	-----	-----	-----	do.
11549	4.40	1.83	-----	-----	-----	Vinegar.
11511	4.18	0.98	-----	-----	-----	Molasses vinegar.
11543	3.10	0.38	-----	-----	-----	Spirit vinegar, below standard in acidity. Was sold by retail dealer as vinegar; misrepresented; sale illegal.
11476	4.12	2.11	-----	-----	-----	Vinegar.
12061	4.38	0.25	-----	-----	-----	Spirit vinegar. Was sold by retail dealer as vinegar; misrepresented; sale as vinegar illegal.

RESULTS OF THE EXAMINATION OF VINEGAR

Laboratory Number.	Material and Brand from Label.	Sold by Retail Dealer as—	Manufacturer or Wholesaler.	Retail Dealer or Party Who Sent Sample for Analysis.
12016	Golden Rod.....	Vinegar.....	Board-Armstrong Co., Alexandria, Va.	J. F. Taylor, High Point.....
11559	Apple Vinegar.....	do.....	do.....	Stroud Bros., Kinston.....
11503	Apple Cider Vinegar.....	do.....	do.....	W. M. Martin, Maxton.....
11525	Distilled.....	do.....	do.....	James E. Melpass, Wilmington.
12050	.....	do.....	do.....	J. E. Smith & Bro., Concord..
11449	Mott's Apple Vinegar.....	do.....	Boushee, E., Wilmington, N. C.	J. F. Hudson, Wilmington....
12565	.....	do.....	Boal, R. L., Mocksville, N. C.	J. T. Angell, Mocksville.....
11609	Molasses and Distilled Vinegar.....	do.....	Boyd, W. C., & Co., Richmond, Va.	Hamilton Supply Co., Red Springs.
12053	.....	do.....	Bridgers & Co., Charlotte, N. C.	Clark Bros., Charlotte.....
11481	.....	do.....	Brown, J. E., Kimesville, N. C.	Coble's Grocery, Burlington ..
12041	Dixie Compound Molasses and Distilled.	do.....	Burr Mfg. Co., Richmond, Va.	Messer & Messer, Waynesville.
11471	.....	do.....	Burton, T. H., Reidsville.....	W. F. Burton, Reidsville.....
11507	.....	do.....	Castleman-Blackmore Co., Louisville, Ky.	J. H. Wishart, Lumberton....
11560	.....	do.....	Cobb, L. A., & Co., Kinston, N. C.	Kinston Peanut Co., Kinston..
11558	.....	do.....	do.....	Hardy Hill, Kinston.....
11552	.....	do.....	do.....	W. H. Murphy, Kinston.....
12037	Apple Vinegar.....	do.....	Coca-Cola Bottling Works, Asheville, N. C.	Morris Grocery Co., Marion..
11839	.....	Spirit Vinegar..	Cramer Bros. Co., Winston-Salem, N. C.	O. F. Brown, Winston-Salem..
11466	.....	Vinegar.....	Dalton, C. H., Madison, N. C.	City Grocery Co., Madison....
12554	.....	do.....	Dalton, W. F., Madison, N. C.	do.....
11528	Circle.....	do.....	Dawson Bros. Mfg. Co., Memphis, Tenn.	Badgett Bros., Wilmington...
11523	Royal Crown.....	do.....	do.....	W. D. Duncan, Wilmington...
12042	Dixie Apple Vinegar.....	do.....	Dixie Vinegar Works, Atlanta, Ga.	L. J. Moody & Co., Bryson City.
12022	.....	do.....	Elliott, L. W., Thomasville, N. C.	L. W. Elliott, Thomasville....
12038	.....	do.....	Ember, Mitch., Alexander, N. C.	H. Buckner & Co., Alexander.
11837	.....	do.....	Everhardt, R., Lexington, R.F.D. 4, N. C.	Salem Supply Co., Winston-Salem.
11579	.....	do.....	Four Co., Norfolk, Va.	J. W. Blount, Plymouth.....
12009	.....	do.....	Frederick, R. J., Guilford College, N. C.	W. S. Miller, Greensboro.....
11881	Dawes' Pure Apple Vinegar.....	do.....	Frey & Son, Baltimore, Md.	W. F. Davis, Louisburg.....
11574	.....	do.....	do.....	E. W. Benton, Edenton.....
12043	Our Pride Distilled Vinegar.....	do.....	Gast-Crofts & Co., Louisville, Ky.	R. H. Hyatt & Co., Murphy..

AND SUBSTITUTES FOR VINEGAR—*Continued.*

Laboratory Number.	Acidity, Total—Per Cent.	Solid Matter in Solution—Per Cent.	Ash—Per Cent.	Total Sugars—Per Cent.	Non-sugar Solids—Per Cent.	Remarks and Conclusions.
12016	4.32	2.04	-----	-----	-----	Vinegar.
11559	4.14	2.11	0.43	-----	-----	do.
11503	4.20	1.92	0.32	-----	-----	do.
11525	4.08	0.36	-----	-----	-----	Spirit vinegar. Was sold by retail dealer as vinegar; misrepresented; sale as vinegar illegal.
12050	4.40	1.76	-----	-----	-----	Vinegar.
11449	4.60	2.34	-----	-----	-----	do.
12565	3.88	3.00	0.43	-----	-----	Vinegar, slightly below standard in acidity.
11609	4.38	0.65	-----	-----	-----	Compound molasses and spirit vinegar. Was sold by dealer as vinegar; misrepresented; sale as vinegar illegal.
12054	4.84	2.46	-----	-----	-----	Vinegar.
11481	4.34	1.66	-----	-----	-----	do.
12041	4.30	0.62	-----	-----	-----	Compound vinegar. Was sold by retail dealer as vinegar; misrepresented; sale as vinegar illegal
11471	4.64	2.54	-----	-----	-----	Vinegar.
11507	4.46	2.47	-----	-----	-----	do.
11560	4.34	2.05	0.25	-----	-----	do.
11558	4.38	2.02	-----	-----	-----	do.
11552	4.96	0.25	-----	0.07	-----	Spirit vinegar. Was sold by retail dealer as vinegar; misrepresented; sale as vinegar illegal.
12037	5.03	2.52	0.32	-----	-----	Vinegar.
11839	4.12	0.40	-----	-----	-----	Spirit vinegar.
11466	1.90	1.68	-----	-----	-----	Vinegar, much below standard in acidity; sale as vinegar illegal.
12554	4.79	3.15	0.48	-----	-----	Vinegar, containing heavy sediment; unfit for use unless filtered to free it from sediment.
11528	4.16	2.02	-----	-----	-----	Vinegar.
11523	4.04	1.04	-----	-----	-----	Spirit vinegar, colored. Not properly labeled; the word "distilled" is printed on label in very small letters that can hardly be seen; misbranded; sale illegal.
12042	4.54	2.45	-----	-----	-----	Vinegar.
12022	6.88	2.28	-----	-----	-----	do.
12038	4.10	0.84	0.25	-----	-----	Compound vinegar. Sold by retail dealer as vinegar; misrepresented; sale illegal.
11837	4.68	1.74	-----	-----	-----	Vinegar.
11579	4.36	1.98	0.33	-----	-----	do.
12009	4.24	0.22	-----	-----	-----	do.
11881	4.18	2.06	-----	-----	-----	do.
11574	3.94	0.28	0.10	0.08	0.20	Spirit vinegar, slightly below standard in acidity. Was sold by retail dealer as vinegar; misrepresented; sale as vinegar illegal.
12043	4.60	0.33	-----	-----	-----	Spirit vinegar. Was sold by retail dealer as vinegar; misrepresented; sale as vinegar illegal.

RESULTS OF THE EXAMINATION OF VINEGAR

Laboratory Number.	Material and Brand from Label.	Sold by Retail Dealer as—	Manufacturer or Wholesaler.	Retail Dealer or Party Who Sent Sample for Analysis.
11604	-----	Vinegar	Gast, Crofts & Co. Louisville, Ky.	R. W. Thaggart, Fayetteville.
11489	Our Pride Dis- tilled Vinegar.	Mixed Vinegar	do	J. W. Simmons, Haw River...
11605	-----	Vinegar	do	W. B. Murphy, Fayetteville..
11844	-----	do	do	Angelo Bros., Winston-Salem.
11867	Distilled, Colored	do	do	Carrie L. Lyon, Enfield
12002	Our Pride Dis- tilled, Colored.	do	do	E. Z. Emery, Durham
11567	Quality Sirup Vinegar.	Sirup Vinegar	Gill, James G., Co., Norfolk, Va.	S. W. Willis, New Bern
11455	Blue Grass Belle	Vinegar	Ginn, J. T., & Co., Goldsboro, N. C.	B. F. Grady, Goldsboro
11544	-----	do	Goldsboro Grocery Co., Goldsboro, N. C.	F. E. Barnes, Goldsboro
11597	-----	do	Gore, D. L., Co., Wilmington, N. C.	N. B. Snipes & Bro., Selma
11474	Monarch Apple Vinegar.	do	Gregory, D. J., Vinegar Co., Richmond, Va.	J. H. Burton, Reidsville
11555	Cider Vinegar	do	do	Henry French, Kinston
11865	-----	do	Hales, George J., Rocky Mount, N. C.	W. S. Shields, Enfield
12040	Golden Harvester Apple Vinegar.	do	Hambley Fruit Product Co., Louisville, Ky.	Waynesville Grocery Co., Waynesville.
11462	-----	do	Hancock Grocery Co., Winston-Salem, N. C.	T. P. Burge, Winston-Salem
12550	-----	do	do	J. A. Hauchins, Winston-Salem.
11840	-----	do	do	Fairecloth & Petree, Winston-Salem.
11599	-----	do	Hare, W. W., Selma, N. C.	Selma Supply Co., Selma
11596	-----	do	do	H. E. H. King, Selma
11512	Distilled Imita- tion Vinegar.	do	Hashagan, F. E., & Co., Wil- mington, N. C.	George H. Heyer, Wilming- ton.
12021	Heinz Aromatic Malt Vinegar.	Heinz Vinegar	Heinz, H. J., Co., Pittsburg, Pa.	Tomlinson Grocery Co., Thomasville.
12563	Rexamber Sugar Vinegar.	Sugar Vinegar	do	Miller Grocery Co., North Wilkesboro.
11496	Malt Vinegar	Vinegar	do	C. V. Williams & Co., Hamlet
11478	Pickling Distilled Heinz.	Apple Pickling	do	J. M. Tisdale, Burlington
11535	-----	Spirit Vinegar	do	J. C. Peterson, Clinton
11584	Molasses and Dis- tilled Vinegar.	Compound Vinegar.	Helwig, Leitch & Tuer, Balti- more, Md.	E. H. Parkerson, Greenville
11515	-----	Vinegar	Heyer Bros., Wilmington, N. C.	C. R. Poke, Wilmington
11458	-----	do	Hildick, Walter H., Co., New York, N. Y.	Park Mercantile Co., Winston- Salem.

AND SUBSTITUTES FOR VINEGAR—*Continued.*

Laboratory Number.	Acidity, Total—Per Cent.	Solid Matter in Solution—Per Cent.	Ash—Per Cent.	Total Sugars—Per Cent.	Non-sugar Solids—Per Cent.	Remarks and Conclusions.
11604	5.10	0.78	0.22	0.14	0.64	Compound vinegar. Was sold by retail dealer as vinegar; misrepresented; sale as vinegar illegal.
11489	4.26	0.33	-----	-----	-----	Spirit vinegar, colored.
11605	3.78	0.48	0.16	0.10	0.38	Compound vinegar, below standard in acidity. Was sold by retail dealer as vinegar; misrepresented; sale as vinegar illegal.
11844	4.16	0.47	-----	-----	-----	Spirit vinegar. Was sold by retail dealer as vinegar; misrepresented; sale as vinegar illegal.
11867	3.62	0.25	-----	-----	-----	Spirit vinegar, below standard in acidity. Was sold by retail dealer as vinegar; misrepresented; sale illegal.
12002	4.12	0.24	-----	-----	-----	Spirit vinegar. Was sold by retail dealer as vinegar; misrepresented; sale as vinegar illegal.
11567	3.15	0.58	0.11	-----	-----	Sirup vinegar, below standard in acidity; sale illegal.
11455	4.46	1.56	-----	-----	-----	Vinegar.
11544	4.76	2.57	-----	-----	-----	do.
11597	4.16	2.57	0.44	-----	-----	do.
11474	5.04	2.35	-----	-----	-----	do.
11555	5.04	2.56	-----	-----	-----	do.
11865	4.70	2.57	-----	-----	-----	do.
12040	4.82	2.12	-----	-----	-----	do.
11462	4.02	2.08	-----	-----	-----	do.
12550	4.13	0.34	0.07	-----	-----	Spirit vinegar. Was sold by retail dealer as vinegar; misrepresented; sale as vinegar illegal.
11840	4.44	2.13	-----	-----	-----	Vinegar.
11599	4.70	0.60	0.09	0.13	0.47	Compound vinegar. Retail dealer did not seem to know whether the product was vinegar or a compound vinegar; sale as vinegar would be illegal.
11596	4.30	4.39	0.40	-----	-----	Vinegar.
11512	4.12	0.26	-----	-----	-----	Spirit vinegar. Was sold by retail dealer as vinegar; misrepresented; sale as vinegar illegal.
12021	5.28	2.47	-----	-----	-----	Malt vinegar.
12563	4.85	1.88	0.26	-----	-----	Sugar vinegar.
11496	5.60	0.21	-----	-----	-----	Spirit vinegar. Was sold by retail dealer as vinegar; misrepresented; sale as vinegar illegal.
11478	5.10	0.29	-----	-----	-----	Spirit vinegar.
11535	5.08	0.21	-----	-----	-----	do.
11584	4.18	0.43	0.11	-----	0.37	Compound molasses vinegar and spirit vinegar.
11515	4.32	1.61	0.07	-----	-----	Compound vinegar. Was sold by retail dealer as vinegar; misrepresented; sale as vinegar illegal.
11458	4.18	2.33	-----	-----	-----	Vinegar.

RESULTS OF THE EXAMINATION OF VINEGAR

Laboratory Number.	Material and Brand from Label.	Sold by Retail Dealer as—	Manufacturer or Wholesaler.	Retail Dealer or Party Who Sent Sample for Analysis.
11825	-----	Vinegar	Hinshaw, A. B., Greensboro, N. C.	Meker & Irvin, Greensboro
11877	Hirsch's Apple Vinegar.	do	Hirsch Bros. & Co., Louisville, Ky.	Claiborne & Son, Henderson
11508	-----	do	do	M. J. Schulken, Wilmington
12553	-----	do	Hood, L. B., Winston-Salem, N. C.	Angelo Bros., Winston-Salem
11869	Monogram	do	Hughes, R. M., & Co., Louisville, Ky.	F. H. Cutchin, Whitakers
11607	do	do	do	W. A. Phillips, Fayetteville
11878	Monogram Distilled and Apple	do	do	R. W. McGhee, Franklinton
11495	Cider Vinegar	do	do	Lackey Bros., Hamlet
11494	-----	Pickling Vinegar.	do	Womble & Watson, Sanford
11493	Distilled Imitation.	Imitation Vinegar.	do	do
11492	Hughes' Vinegar.	Vinegar	Hughes, R. M., & Co., Middleport, N. Y.	Lee Store Co., Sanford
11498	Monogram Distilled.	do	Hughes, R. M., & Co., Louisville, Ky.	H. A. McKay, Laurinburg
11453	-----	do	do	J. W. Andrews, Mount Olive
11513	-----	do	do	The Thomas Grocery, Wilmington.
11587	Monogram Compound	do	do	Tarboro Grocery Co., Tarboro.
11538	-----	do	do	J. B. Cox, Warsaw
11534	Monogram Distilled and Apple Vinegar.	do	do	J. C. Peterson, Clinton
11537	Distilled Pickling	Spirit Vinegar	do	J. B. Cox, Warsaw
11550	Monogram	Vinegar	do	W. P. Hardy, LaGrange
11533	Monogram Spirit and Apple.	do	do	Register Bros., Clinton
11505	Monogram Distilled and Apple	do	do	The King Grocery Co., Lumberton.
12000	Monogram Apple and Distilled.	do	do	A. W. Cain & Co., East Durham.
11501	Monogram Spirit and Apple.	do	do	G. W. Goodwyn, Laurinburg
11500	Monogram Pickling and Apple	do	do	Planters Trading Co., Laurinburg.
11569	Monogram	do	do	Charles M. Little, Washington
11875	-----	do	do	Pritchford Co., Oxford
11521	Monogram, Compound.	do	do	J. H. Kuck, Wilmington
11858	Monogram	do	do	City Grocery Co., Elm City.
11595	-----	Monogram Apple Vinegar.	do	J. D. Williams, Wilson
11610	Monogram Compound.	Vinegar	do	Frank Jessup, Red Springs
11824	-----	do	do	J. H. & W. F. Low, Greensboro.

AND SUBSTITUTES FOR VINEGAR—*Continued.*

Laboratory Number.	Acidity, Total—Per Cent.	Solid Matter in Solution—Per Cent.	Ash—Per Cent.	Total Sugars—Per Cent.	Non-sugar Solids—Per Cent.	Remarks and Conclusions.
11825	4.72	2.23	-----	-----	-----	Vinegar.
11877	4.44	2.00	-----	-----	-----	do.
11508	4.28	0.54	-----	-----	-----	Compound vinegar. Was sold by retail dealer as vinegar; misrepresented; sale as vinegar illegal.
12553	4.55	2.25	0.52	-----	-----	Vinegar.
11869	4.84	2.10	-----	-----	-----	do.
11607	4.28	1.81	0.23	0.56	1.25	do.
11878	4.76	1.15	-----	-----	-----	Compound vinegar. Was sold by retail dealer as vinegar; misrepresented; sale as vinegar illegal.
11495	4.26	1.82	0.26	-----	-----	Vinegar.
11494	4.66	0.22	-----	-----	-----	Spirit vinegar.
11493	4.54	0.24	-----	-----	-----	do.
11492	4.08	1.71	-----	-----	-----	Vinegar, to which a small amount of water had been added to reduce to standard strength.
11498	4.84	1.04	0.21	-----	-----	Compound vinegar. Was sold by retail dealer as vinegar; misrepresented; sale as vinegar illegal.
11453	4.58	0.84	-----	-----	-----	do.
11513	4.92	1.04	-----	-----	-----	do.
11587	4.28	0.20	-----	-----	-----	do.
11538	4.54	1.20	-----	-----	-----	do.
11534	4.76	1.08	-----	-----	-----	do.
11537	4.62	0.26	-----	-----	-----	Spirit vinegar.
11550	4.34	0.98	0.14	0.29	-----	Compound vinegar. Was sold by retail dealer as vinegar; misrepresented; sale as vinegar illegal.
11533	4.86	0.91	-----	-----	-----	do.
11505	4.20	0.73	-----	-----	-----	do.
12000	4.32	0.94	-----	-----	-----	do.
11501	4.44	1.25	-----	-----	-----	do.
11500	4.64	1.13	-----	-----	-----	do.
11569	6.20	0.89	0.18	0.29	0.60	do.
11875	4.32	1.08	-----	-----	-----	do.
11521	4.74	1.06	-----	-----	-----	do.
11858	5.66	1.35	-----	-----	-----	do.
11595	4.18	1.10	-----	0.31	0.79	do.
11610	4.70	0.96	0.24	-----	-----	do.
11824	4.94	0.90	-----	-----	-----	do.

RESULTS OF THE EXAMINATION OF VINEGAR

Laboratory Number.	Material and Brand from Label.	Sold by Retail Dealer as—	Manufacturer or Wholesaler.	Retail Dealer or Party Who Sent Sample for Analysis.
11608	Monogram Distilled.	Pickling Vinegar.	Hughes, R. M., & Co., Louisville, Ky.	John J. Thrower & Co., Red Springs.
11830	Monogram Apple and Distilled.	Vinegar.	do.	Charles E. Pugh, Greensboro.
11873	Apple Vinegar.	do.	do.	J. T. Sizemore, Oxford.
11861	Monogram.	do.	do.	J. W. Sharpe, Elm City.
11593		do.	do.	E. Harrell, Wilson.
11592	Monogram.	do.	do.	Ellis & Co., Wilson.
11591	do.	do.	do.	G. F. Jones, Rocky Mount.
11590	do.	do.	do.	Oppenheimer's, Rocky Mount.
11581		do.	do.	R. B. Brown, Williamston.
11524	Monogram.	do.	do.	R. A. Montgomery, Wilmington.
11606	Distilled Vinegar.	do.	do.	J. F. Powers & Son, Fayetteville.
11600		do.	do.	Ideal Grocery Co., Selma.
11602	Apple Cider Vinegar.	do.	do.	Wallace Grocery Co., Smithfield.
11603	do.	do.	Hughes, R. M., & Co., Middleport, N. Y.	L. E. Watson, Smithfield.
12031	Monogram Distilled and Apple.	do.	Hughes, R. M., & Co., Louisville, Ky.	W. D. Cornelison, Spencer.
12032	Monogram.	do.	do.	J. G. Calvert, Statesville.
12036		Compound Vinegar.	do.	A. W. Grayson, Marion.
12058	Monogram Pickling and Apple.	Monogram Vinegar.	do.	F. M. Hightower, Wadesboro.
12059	do.	Vinegar.	do.	J. H. Tice, Wadesboro.
11999	Monogram.	do.	do.	T. H. Alford, East Durham.
12048	White Distilled Pickling.	do.	do.	R. B. Hicks, Cherryville.
13046	Monogram Distilled Pickling and Apple.	Compound Vinegar.	do.	O. L. Erwin, Brevard.
12062		Monogram Vinegar.	do.	W. C. Jones, Lilesville.
11998	Monogram.	Vinegar.	do.	Barbee & Elliott, Durham.
12019	Imitation Vinegar.	do.	do.	S. E. Willis, High Point.
12005	Monogram.	do.	do.	Pope & Mangum, West Durham.
12004	Monogram Pickling and Apple.	do.	do.	J. C. Dailey, West Durham.
11871	Eat-A-Vinegar.	do.	Jefferson Pickle Co., Richmond, Va.	C. J. Evans, Weldon.
11475		do.	Jenney, B. S., Jr., & Co., Philadelphia, Pa.	W. P. Ware, Reidsville.
11542	Blue Grass Belle Apple Vinegar.	do.	Jones Bros. & Co., Louisville, Ky.	W. R. Crow, Goldsboro.
11464		Spirit Vinegar.	Joyce Bros., Winston-Salem, N.C.	F. H. Farabee, Winston-Salem.
11459	Distilled Spirit Vinegar.	do.	do.	W. A. Eaton, Winston-Salem.

AND SUBSTITUTES FOR VINEGAR—*Continued.*

Laboratory Number.	Acidity, Total—Per Cent.	Solid Matter in Solution—Per Cent.	Ash—Per Cent.	Total Sugars—Per Cent.	Non-sugar Solids—Per Cent.	Remarks and Conclusions.
11608	4.34	0.25	-----	-----	-----	Spirit vinegar.
11830	4.78	1.04	-----	-----	-----	Compound vinegar. Was sold by retail dealer as vinegar; misrepresented; sale as vinegar illegal.
11873	4.22	2.07	-----	-----	-----	Vinegar, reduced to standard acidity with water.
11861	4.74	1.17	-----	-----	-----	Compound vinegar. Was sold by retail dealer as vinegar; misrepresented; sale as vinegar illegal.
11593	4.48	1.10	0.21	0.31	0.79	do.
11592	4.60	1.09	0.23	0.32	0.77	do.
11591	4.26	1.18	0.27	0.34	0.84	do.
11590	6.17	0.65	0.14	0.22	0.43	do.
11581	4.14	0.93	0.17	0.29	0.64	do.
11524	4.45	1.49	-----	-----	-----	do.
11606	4.38	0.57	-----	-----	-----	do.
11600	5.21	0.92	0.21	0.68	0.24	do.
11602	5.78	2.17	0.38	-----	-----	Vinegar.
11603	4.09	2.35	0.36	-----	-----	Vinegar, reduced to standard acidity with water.
12031	4.28	1.07	-----	-----	-----	Compound vinegar. Was sold by retail dealer as vinegar; misrepresented; sale as vinegar illegal.
12032	5.00	1.10	-----	-----	-----	do.
12036	4.42	0.40	-----	-----	-----	Compound vinegar.
12058	4.68	0.92	-----	-----	-----	Compound vinegar. Was sold by retail dealer as vinegar; misrepresented; sale as vinegar illegal.
12059	4.80	0.93	-----	-----	-----	do.
11999	5.44	1.04	-----	-----	-----	do.
12048	4.46	0.23	-----	-----	-----	Spirit vinegar. Was sold by retail dealer as vinegar; misrepresented; sale as vinegar illegal.
12046	4.66	0.71	-----	-----	-----	Compound vinegar. Was sold by retail dealer as vinegar; misrepresented; sale as vinegar illegal.
12062	4.66	1.03	-----	-----	-----	do.
11998	5.14	0.96	-----	-----	-----	do.
12019	4.24	0.46	-----	-----	-----	Spirit vinegar, colored. Was sold by retail dealer as vinegar; misrepresented; sale as vinegar illegal.
12005	5.39	1.11	-----	-----	-----	Compound vinegar. Was sold by retail dealer as vinegar; misrepresented; sale as vinegar illegal.
12004	4.22	1.00	-----	-----	-----	do.
11871	4.04	0.43	-----	-----	-----	Compound vinegar; misbranded; sale as vinegar illegal. Is branded vinegar in large type; explanation in small type conflicts with name "vinegar" on label.
11475	4.54	2.10	-----	-----	-----	Vinegar.
11542	4.46	2.62	-----	-----	-----	do.
11464	3.80	0.20	-----	-----	-----	Spirit vinegar, slightly below standard in acidity; sale illegal.
11459	5.08	0.65	-----	-----	-----	Spirit vinegar

RESULTS OF THE EXAMINATION OF VINEGAR

Laboratory Number.	Material and Brand from Label.	Sold by Retail Dealer as—	Manufacturer or Wholesaler.	Retail Dealer or Party Who Sent Sample for Analysis.
11572		Vinegar	Kelly & Barham, Norfolk, Va.	L. C. Mariner, Mackeys Ferry
12060		do	Kuester, Lowe & Co., Charlotte, N. C.	O. K. Colson, Wadesboro
11559	Compound Dis- tilled Grape.	do	Knott, T. G., Suffolk, Va.	J. L. Farmer, Elm City
12569	do	Grape Vinegar	do	J. M. Tisdale, Burlington
11454		Vinegar	do	George E. Daniel, Goldsboro
11472	Compound, Dis- tilled and Grape.	Grape Vinegar	do	W. F. Burton, Reidsville
12570	Compound, Dis- tilled Grape.	Vinegar	do	J. A. Isley & Bro. Co., Bur- lington.
11861		do	do	G. A. Hux & Co., Halifax
11860		do	do	Sharpe & Farmer, Elm City
11589		do	do	S. B. Pittman, Tarboro
11563		Vinegar, 40- grain.	do	J. B. Sawyer, Morehead City
11562	Distilled and Grape.	Vinegar	do	H. I. Sutton, Kinston
11553	Comp. Distilled Grape Vinegar.	Grape Vinegar	do	T. B. Holloway, Kinston
11863	do	do	do	D. C. Bell, Halifax
11866	Grape Com- pound.	Vinegar	do	J. W. Leonard & Co., Enfield
12003		Grape Vinegar	do	R. M. Mann & Co., Durham
12020		Vinegar	Lexington Grocery Co., Lexing- ton, N. C.	Kennedy Bros., High Point
11546	Apple Cider Vinegar.	do	Libby, McNeil & Libby, Chicago, Ill.	W. D. Creech, Goldsboro
11529	Vinegar	do	do	King Bros., Wilmington
12571		do	do	L. B. McAdams, Burlington
11997		do	Lockhart, G. B., Hillsboro, N. C.	Markham-Stevens Co., Dur- ham.
11468		Blended Vine- gar.	Madison Grocery Co., Madison, N. C.	Madison Grocery Co., Madi- son.
11483		Vinegar	McLamb & Co., Burlington, N. C.	J. N. Cates, Burlington
11994		do	McLinnon, J., Durham, N. C.	J. McLinnon, Durham
11996		do	Merchants Grocery Co., Durham, N. C.	N. E. Couch, Durham
12001		do	do	R. H. Morris, Durham
12564		do	Miller, Mrs. Maggie, Mocksville, N. C.	J. L. Clement, Mocksville
11460	Distilled, Colored	Straight Vine- gar.	Messick, E. R., Winston-Salem, N. C.	Fairview Cash Store, Win- ston-Salem.
11570		Vinegar	Mixon, E. R., & Co., Washington, N. C.	J. E. Adams, Washington
12053		do	Moody, Charles, Co., Charlotte, N. C.	E. W. Berryhill, Charlotte

AND SUBSTITUTES FOR VINEGAR—*Continued.*

Laboratory Number.	Acidity, Total—Per Cent.	Solid Matter in Solution—Per Cent.	Ash—Per Cent.	Total Sugars—Per Cent.	Non-sugar Solids—Per Cent.	Remarks and Conclusions.
11572	4.38	1.76	0.25	-----	-----	Vinegar.
12060	4.34	0.26	-----	-----	-----	Spirit vinegar. Was sold by retail dealer as vinegar; misrepresented; sale as vinegar illegal.
11859	5.36	0.67	-----	-----	-----	Compound vinegar, spirit and grape. Was sold by retail dealer as vinegar; misrepresented; sale as vinegar illegal.
12569	5.58	0.59	0.05	-----	-----	Spirit vinegar, containing small amount grape vinegar. Was sold by retail dealer as grape vinegar; misrepresented; sale as grape vinegar illegal.
11454	5.18	0.55	-----	-----	-----	Compound vinegar, spirit and grape. Was sold by retail dealer as vinegar; misrepresented; sale as vinegar illegal.
11472	4.82	0.62	-----	-----	-----	Compound vinegar, spirit and grape. Was sold by retail dealer as grape vinegar; misrepresented; sale as grape vinegar illegal.
12570	5.15	0.43	0.03	-----	-----	Spirit vinegar, containing small amount grape vinegar. Was sold by retail dealer as vinegar; misrepresented; sale as vinegar illegal.
11864	4.02	0.18	-----	-----	-----	do.
11560	4.96	0.60	-----	-----	-----	Compound vinegar, spirit and grape. Was sold by retail dealer as vinegar; misrepresented; sale as vinegar illegal.
11589	4.50	0.40	0.08	-----	-----	do.
11563	5.26	0.47	0.04	-----	-----	do.
11562	4.72	0.56	0.02	-----	-----	do.
11563	4.90	0.57	0.16	-----	-----	do.
11863	5.10	0.50	-----	-----	-----	do.
11866	5.52	0.49	-----	-----	-----	do.
12003	5.54	0.42	-----	-----	-----	Compound spirit vinegar, containing a very small amount of grape vinegar. Was sold by retail dealer as grape vinegar; misrepresented; sale as grape vinegar illegal.
12020	4.80	2.32	-----	-----	-----	Vinegar.
11546	4.58	2.86	-----	-----	-----	do.
11529	4.64	3.23	-----	-----	-----	do.
12571	4.79	2.53	0.41	-----	-----	do.
11997	3.82	1.49	-----	-----	-----	Vinegar, slightly below standard; sale illegal. Seems to have had water added.
11468	2.78	2.95	-----	-----	-----	Vinegar, much below standard in acidity; sale illegal.
11483	2.02	2.00	-----	-----	-----	Vinegar, below standard in acidity; sale illegal.
11994	5.04	3.34	-----	-----	-----	Vinegar.
11996	5.10	0.52	-----	-----	-----	Compound vinegar. Was sold by retail dealer as vinegar; misrepresented; sale as vinegar illegal.
12001	4.34	2.31	-----	-----	-----	Vinegar.
12564	3.03	2.13	0.34	-----	-----	Vinegar, below standard in acidity; sale illegal. Seems to have had water added to the cider or the pomace in the making.
11460	4.10	0.30	-----	-----	-----	Spirit vinegar. Was sold by retail dealer as vinegar; misrepresented; sale as vinegar illegal.
11570	4.64	0.46	0.11	0.13	0.33	do.
12053	4.52	2.44	-----	-----	-----	Vinegar.

RESULTS OF THE EXAMINATION OF VINEGAR

Laboratory Number.	Material and Brand from Label.	Sold by Retail Dealer as—	Manufacturer or Wholesaler.	Retail Dealer or Party Who Sent Sample for Analysis.
12034		Vinegar	Morganton Grocery Co., Morganton, N. C.	G. H. Lowdermilk, Morganton.
11912		do.	Morris & Shepperd, Alexander, N. C.	Morris & Shepperd, Alexander
11518	Apple Vinegar	do.	Mott, S. R. & J. C., Bouckville, N. Y.	N. Humphrey, Wilmington
11510		do.	Mott, S. R. & J. C., Rochester, N. Y.	S. W. Saunders, Wilmington
11451	Apple Vinegar	do.	Mott, S. R. & J. C., Bouckville, N. Y.	W. Patton, Mount Olive
12552	Mount Vernon Dis. Vinegar.	do.	National Fruit Products Co., Alexandria, Va.	Moore, Newsom & Co., Winston-Salem.
12007	O. H. Molasses and Distilled Vinegar.	Apple Vinegar	Old Homestead Mfg. Co., Richmond, Va.	S. M. Hill, Greensboro
11876		Vinegar	Parham, A. C., Oxford, N. C.	J. D. Brooks, Oxford
12033		do.	Patrick-Mostler Co.	Shell Grocery Co., Hickory
11452	Apple Vinegar	do.	Pipkin, R. E., Goldsboro, N. C.	Morton & Price Co., Mount Olive.
12568		do.	Reidsville Grocery Co., Reidsville, N. C.	C. H. Pettigrew, Reidsville
11829		do.	Rivanna Vinegar Co., Profit, Va.	O. F. Pearce, Greensboro
12566		do.	Reidsville Grocery Co., Reidsville, N. C.	Borland & Ford, Reidsville
12049		do.	Robinson, A. C., Kidsville, N. C.	J. F. Mullen, Lincolnton
11482		do.	Saunders, E. A., & Sons Co., Richmond, Va.	C. M. Horner, Burlington
11841	Best by Test	do.	do.	Vernon Grocery Co., Winston-Salem.
12567		do.	do.	J. H. Burton, Reidsville
12063	Good Luck, Blended Sirup and Distilled.	do.	do.	W. G. Lowey, Rockingham
11473	Shirley Apple Vinegar.	do.	do.	W. F. Burton, Reidsville
12030	Red Deer Distilled.	do.	Shelby, E. S., Vinegar Co., Richmond, Va.	Nassar Bros., Salisbury
11879	do.	do.	do.	W. S. Hale, Louisburg
12025	Red Buck Distilled.	Cheap Vinegar	do.	W. M. Harris, Salisbury
11548	Golden Rod Apple Vinegar.	Vinegar	do.	A. W. Kennedy, Jr., LaGrange
12023	Red Deer Distilled.	do.	do.	L. W. Lopp Bros., Lexington
11547	Apple Cider Vinegar.	do.	Shenandoah Valley Apple Cider and Vinegar Corporation, Winchester, Va.	J. W. Cole, Goldsboro
12018		Pure Vinegar from Rotten Apples.	Z. M. Silman, High Point, N. C.	Z. M. Silman, High Point
12027		Vinegar	Simpson, Peacock, Salisbury, N. C.	W. H. Huff, Salisbury

AND SUBSTITUTES FOR VINEGAR—*Continued.*

Laboratory Number.	Acidity, Total—Per Cent.	Solid Matter in Solution—Per Cent.	Ash—Per Cent.	Total Sugars—Per Cent.	Non-sugar Solids—Per Cent.	Remarks and Conclusions.
12034	4.96	2.38	-----	-----	-----	Vinegar.
11912	2.66	3.12	-----	-----	-----	The high solids and low acidity with practically no alcohol, indicates that acetic fermentation had begun before the alcoholic fermentation was complete. Acidity too low; sale illegal.
11518	4.64	2.61	-----	-----	-----	Vinegar.
11510	4.76	2.91	-----	-----	-----	do.
11451	4.68	3.02	-----	-----	-----	do.
12552	4.36	0.29	0.04	-----	-----	Spirit vinegar. Was sold by retail dealer as vinegar; misrepresented; sale as vinegar illegal.
12007	3.89	0.42	-----	-----	-----	Compound vinegar, molasses and distilled, slightly below standard in acidity. Was sold by retail dealer as vinegar; misrepresented; sale as vinegar illegal.
11876	6.78	2.90	-----	-----	-----	Vinegar.
12033	4.22	1.01	-----	-----	-----	Compound vinegar. Was sold by retail dealer as vinegar; misrepresented; sale as vinegar illegal.
11452	4.36	2.14	-----	-----	-----	Vinegar.
12568	4.55	0.51	0.05	-----	-----	Spirit vinegar. Was sold by retail dealer as vinegar; misrepresented; sale as vinegar illegal.
11829	5.22	2.70	-----	-----	-----	Vinegar.
12566	4.61	2.35	0.27	-----	-----	do.
12049	1.74	3.70	-----	-----	-----	Not vinegar. Too low in acidity to be regarded as vinegar; sale as vinegar illegal.
11482	4.54	2.05	-----	-----	-----	Vinegar.
11841	4.44	1.81	-----	-----	-----	do.
12567	4.73	1.93	0.48	-----	-----	do.
12063	3.68	0.41	-----	-----	-----	Compound vinegar. Was sold by retail dealer as vinegar; misrepresented; sale as vinegar illegal.
11473	4.25	2.69	0.35	-----	-----	Vinegar.
12030	3.82	0.77	-----	-----	-----	Spirit vinegar, below standard in acidity. Was sold by retail dealer as vinegar; misrepresented; sale as vinegar illegal.
11879	4.14	0.28	-----	-----	-----	Spirit vinegar. Was sold by retail dealer as vinegar; misrepresented; sale as vinegar illegal.
12025	4.24	0.46	-----	-----	-----	do.
11548	4.16	1.78	0.37	-----	-----	Vinegar.
12023	3.60	0.39	-----	-----	-----	Spirit vinegar, below standard in acidity. Was sold by retail dealer as vinegar; misrepresented; sale as vinegar illegal.
11547	4.26	1.68	-----	-----	-----	Vinegar.
12018	3.24	3.08	-----	-----	-----	Vinegar, below standard in acidity and appears to have been made from rotten apples; sale illegal.
12027	3.84	0.25	-----	-----	-----	Spirit vinegar, below standard in acidity. Was sold by retail dealer as vinegar; misrepresented; sale as vinegar illegal.

RESULTS OF THE EXAMINATION OF VINEGAR

Laboratory Number.	Material and Brand from Label.	Sold by Retail Dealer as—	Manufacturer or Wholesaler.	Retail Dealer or Party Who Sent Sample for Analysis.
11485	-----	Vinegar.-----	Smith, W. T., Graham, N. C.----	Thomas Store Co., Graham....
12051	-----	do.-----	Smith, T. J., Profit, Va.-----	S. H. Youngblood, Charlotte.
11832	-----	do.-----	Smitherman & Co., Greensboro, N. C.	Fleming Kellam, Greensboro..
11822	-----	do.-----	do.-----	R. G. Hyatt, Greensboro.....
11578	-----	do.-----	Southern Distributing Co., Norfolk, Va.	A. T. Gaylord, Plymouth.....
12064	Blue Ribbon Apple Vinegar.	do.-----	do.-----	W. L. London, Pittsboro.....
11457	Apple Pie Ridge Cider Vinegar.	do.-----	Norwood-Spicer Co., Goldsboro, N. C.	W. M. Smith, Goldsboro.....
11545	-----	Pickling Vinegar.	do.-----	J. Z. Hinson, Goldsboro.....
11842	-----	Vinegar.-----	Spraig-Warner Co., Chicago, Ill.	Efrid Bros., Winston-Salem...
11522	Sirup and Distilled Spirit.	do.-----	Stevenson, J. C., Co., Wilmington, N. C.	B. W. Bradford, Wilmington...
11479	-----	do.-----	Stewart, Nathan, Snow Camp, N. C.	Florence & Walker, Burlington.
11568	Compound Grape Vinegar.	do.-----	Suffolk Vinegar Works, Suffolk, Va.	J. M. Harrison, New Bern...
11456	do.-----	do.-----	do.-----	W. R. Thompson, Goldsboro...
11554	-----	do.-----	Summerell & McCoy, Kinston, N. C.	R. L. Hardy, Kinston.....
11551	-----	do.-----	do.-----	W. W. Tuton, Kinston.....
12039	-----	do.-----	Swans-Sullens-Brandon Co., Knoxville, Tenn.	Hot Springs Supply Co., Hot Springs.
11995	-----	do.-----	Thomas-Howard Co., Durham, N. C.	J. D. Edwards & Son, Durham.
12562	-----	do.-----	Vaughan-Hemphill Co., North Wilkesboro.	Allen Grocery Co., North Wilkesboro.
12012	-----	do.-----	Vernon Coble, Julian, N. C.-----	J. H. Low, Greensboro.....
11571	-----	do.-----	Weatherby, W. H., Co., Elizabeth City, N. C.	J. D. Pugh, Belhaven.....
11506	Family Brand	do.-----	Whitehead, E. I., & Co., Louisville, Ky.	M. M. Rozier, Lumberton.....
11502	-----	Imitation Vinegar.	do.-----	E. L. Burnes, Maxton.....
12056	Family Imitation	Vinegar.-----	do.-----	H. J. Henderson & Son, Monroe.
12057	do.-----	do.-----	do.-----	S. B. Hart, Monroe.....
11566	Robin Hood	do.-----	Williams, R. C., & Co., New York, N. Y.	Potter Bros., Beaufort.....
12047	-----	do.-----	do.-----	Burekmyer Bros., Hendersonville.
11848	-----	do.-----	Wright, C. C., Hunting Creek, N. C.	Smithey's Cheap Store, North Wilkesboro.
11760	-----	do.-----	York State Fruit Co., Fairport, N. Y.	C. Sawyer, Asheville.....
11487	-----	Mixed Vinegar.	-----	Anderson & Simpson, Haw River.
11531	-----	Vinegar.-----	-----	W. H. Biddle, Wilmington....

AND SUBSTITUTES FOR VINEGAR—*Continued.*

Laboratory Number.	Acidity, Total—Per Cent.	Solid Matter in Solution—Per Cent.	Ash—Per Cent.	Total Sugars—Per Cent.	Non-sugar Solids—Per Cent.	Remarks and Conclusions.
11485	5.46	1.95	0.57	0.31	1.38	Vinegar.
12051	4.48	1.99	-----	-----	-----	do.
11832	5.28	0.34	-----	-----	-----	Spirit vinegar. Was sold by retail dealer as vinegar; misrepresented; sale as vinegar illegal.
11822	4.40	2.96	-----	-----	-----	Vinegar.
11578	3.94	1.89	0.44	0.80	1.09	do.
12064	4.34	2.02	-----	-----	-----	do.
11457	4.40	2.69	-----	-----	-----	do.
11545	4.84	0.22	-----	-----	-----	Spirit vinegar.
11842	5.10	2.60	-----	-----	-----	Vinegar.
11522	4.66	0.67	-----	-----	-----	Compound vinegar. Was sold by retail dealer as vinegar; misrepresented; sale as vinegar illegal.
11479	2.54	1.89	-----	-----	-----	Vinegar, below standard in acidity; sale illegal.
11568	5.12	0.50	-----	-----	-----	Compound vinegar, spirit and grape. Was sold by retail dealer as vinegar; misrepresented; sale as vinegar illegal.
11456	4.82	0.68	-----	-----	-----	do.
11554	3.94	0.53	0.15	0.12	-----	Compound vinegar, slightly below standard in acidity. Was sold by retail dealer as vinegar; misrepresented; sale as vinegar illegal.
11551	4.20	0.38	0.09	0.13	-----	Spirit vinegar. Dealer should know what he is selling.
12039	4.78	0.34	-----	-----	-----	Spirit vinegar. Was sold by retail dealer as vinegar; misrepresented; sale as vinegar illegal.
11995	4.90	1.08	-----	-----	-----	Compound vinegar. Was sold by retail dealer as vinegar; misrepresented; sale as vinegar illegal.
12562	4.12	0.22	0.01	-----	-----	Spirit vinegar. Was sold by retail dealer as vinegar; misrepresented; sale as vinegar illegal.
12012	1.70	2.48	-----	-----	-----	Product is so low in acidity it cannot be termed a vinegar; sale as vinegar illegal.
11571	4.24	3.78	0.32	-----	-----	Vinegar.
11506	4.48	0.38	0.09	-----	-----	Spirit vinegar, colored. Was sold by retail dealer as vinegar; misrepresented; sale as vinegar illegal.
11502	4.58	0.47	-----	-----	-----	Spirit vinegar, colored.
12056	4.66	0.36	-----	-----	-----	Spirit vinegar. Was sold by retail dealer as vinegar; misrepresented; sale as vinegar illegal.
12057	4.92	0.43	-----	-----	-----	do.
11566	4.26	1.91	0.24	0.72	1.19	Vinegar.
12047	4.32	1.92	-----	-----	-----	do.
11848	5.62	2.77	-----	-----	-----	do.
11760	5.00	2.49	0.27	0.90	1.60	do.
11487	4.42	0.36	-----	-----	-----	Compound vinegar.
11531	5.84	0.62	-----	-----	-----	Compound vinegar. Was sold by retail dealer as vinegar; misrepresented; sale as vinegar illegal.

RESULTS OF THE EXAMINATION OF VINEGAR

Laboratory Number.	Material and Brand from Label.	Sold by Retail Dealer as—	Manufacturer or Wholesaler.	Retail Dealer or Party Who Sent Sample for Analysis.
12573		Vinegar		J. T. Black & Bro., Graham.
11540		do.		L. P. Best, Warsaw.
11490		do.		Blackmon-Thompson Store Co., Haw River.
11872		do.		E. C. Bobbitt, Littleton.
11835		Compound Vinegar.		Bodenheimer Bros., Wauhtown.
12029		Vinegar.		Petre Boulus, Salisbury.
11473		do.		W. F. Burton, Reidsville.
12028		do.		F. O. Cauble, Salisbury.
12505		Comp. Grape Vinegar.		Conetoe Supply Co., Conetoe.
11580		Vinegar.		O. K. Cownig, Williamston.
11530	Distilled Spirit	do.		W. M. Edwards, Wilmington.
12560		do.		Elkin Grocery Co., Elkin.
11843		do.		Farmer Stock Co., Winston-Salem.
12044		do.		A. A. Featherston, Asheville.
12052		do.		W. J. Fite, Charlotte.
11539		Vinegar Compound.		John Frederick, Warsaw.
11588		Vinegar.		Y. D. Garrett, Tarboro.
10718		do.		H. P. Greene, Raleigh, R. 3.
11564		do.		S. T. Harrell & Son, Morehead City.
11868		do.		W. M. Harris, Whitakers.
12013		Vinegar Compound.		Hudson Grocery Co., Greensboro.
11582		Vinegar.		W. B. Higson, Greenville.
11880		do.		Hill Live Stock Co., Louisville.
11477		do.		J. A. Isley & Bro. Co., Burlington.
11497		do.		G. J. Jacobs, Laurinburg.
11576		do.		V. D. Jones, Edenton.
11532		do.		Kelley & Hamlin, Wilmington.
11469		Mixed Vinegar.		E. L. Kiser Co., Rural Hall.
12026		Vinegar.		W. S. Klutz, Salisbury.
12015		do.		J. S. Kenley, High Point.
11431		do.		W. S. Lineberry, Raleigh.
12548		do.		Liberty Mercantile Co., Winston-Salem.
11823		do.		J. H. & W. F. Low, Greensboro.

AND SUBSTITUTES FOR VINEGAR—*Continued.*

Laboratory Number.	Acidity, Total—Per Cent.	Solid Matter in Solution—Per Cent.	Ash—Per Cent.	Total Sugars—Per Cent.	Non-sugar Solids—Per Cent.	Remarks and Conclusions.
12573	3.10	2.34	0.37			Vinegar, below standard in acidity; sale illegal.
11540	4.70	2.86	0.32			Vinegar.
11490	3.28	1.88				Vinegar, below standard in acidity; sale illegal.
11872	3.80	1.91				do.
11835	3.86	1.21				Compound vinegar, below standard in acidity; sale illegal.
12029	3.76	0.22				Spirit vinegar, below standard in acidity. Was sold by retail dealer as vinegar; misrepresented; sale as vinegar illegal.
11473	4.26	2.55	0.29			Vinegar.
12028	4.32	0.20				Spirit vinegar. Was sold by retail dealer as vinegar; misrepresented; sale as vinegar illegal.
12505	5.36	0.61	0.10			Compound vinegar, spirit and grape.
11580	4.72	0.79		0.30	0.49	Compound vinegar. Was sold by retail dealer as vinegar; misrepresented; sale as vinegar illegal.
11530	4.44	0.77				do.
12560	4.97	2.61	0.41			Vinegar.
11843	1.70	1.44				Product is so low in acidity it cannot be termed a vinegar; sale as vinegar illegal.
12044	4.84	1.82				Vinegar.
12052	5.72	0.36				Spirit vinegar. Dealer claims to not have known kind. All dealers should know what they are selling.
11539	4.74	1.90	0.29	0.62	1.28	Compound vinegar.
11588	4.44	0.26	0.05	0.06	0.20	Spirit vinegar. Was sold by retail dealer as vinegar; misrepresented; sale as vinegar illegal.
10718	5.45	1.80	0.30			Vinegar.
11564	4.98	0.22	0.02	0.08	0.14	Spirit vinegar. Was sold by retail dealer as vinegar; misrepresented; sale as vinegar illegal.
11868	4.30	0.49				Compound vinegar. Was sold by retail dealer as vinegar; misrepresented; sale as vinegar illegal.
12013	4.50	1.42	0.20	0.45	0.97	Compound vinegar.
11582	5.76	0.37	0.09	0.11	0.26	Spirit vinegar. Was sold by retail dealer as vinegar; misrepresented; sale as vinegar illegal.
11880	4.92	0.51				Compound vinegar. Was sold by retail dealer as vinegar; misrepresented; sale as vinegar illegal.
11477	4.00	0.50				do.
11497	4.42	3.42	0.46			Vinegar.
11576	5.68	0.83	0.15	0.31	0.52	Compound vinegar. Was sold by retail dealer as vinegar; misrepresented; sale as vinegar illegal.
11532	5.30	0.23				Spirit vinegar. Was sold by retail dealer as vinegar; misrepresented; sale as vinegar illegal.
11469	1.82	0.52				Compound vinegar, below standard in acidity; sale illegal.
12026	4.30	1.92				Vinegar.
12015	4.92	2.58				do.
11431		0.82				Compound vinegar; sale as vinegar illegal.
12548	4.42	0.32	0.03			Spirit vinegar. Was sold by retail dealer as vinegar; misrepresented; sale as vinegar illegal.
11823	5.42	3.35				Vinegar.

RESULTS OF THE EXAMINATION OF VINEGAR

Laboratory Number.	Material and Brand from Label.	Sold by Retail Dealer as—	Manufacturer or Wholesaler.	Retail Dealer or Party Who Sent Sample for Analysis.
11573		Vinegar.....	.....	W. A. Mansfield, Edenton.....
12572		do.....	.....	E. E. McAdams, Graham.....
11463		do.....	.....	W. L. Moser Cash Store, Winston-Salem.
12555		do.....	.....	Meador Supply Co., Madison.
11838		do.....	.....	Myers Grocery Co., Winston- Salem.
11486		do.....	.....	W. J. Nicks, Graham.....
11519	Distilled, Colored	do.....	.....	W. D. Orr, Wilmington.....
11536		Compound Vinegar.	.....	D. M. Patrick & Co., Clinton.
12045		Vinegar.....	.....	Patrick & McIntyre, Ashe- ville.
12535		Sugar Vinegar.....	.....	P. A. Reavis, Louisburg.....
11594		Vinegar.....	.....	Ruffin-High Co., Wilson.....
12024		do.....	.....	G. H. Shaver, Salisbury.....
11480		do.....	.....	R. L. Spoon, Burlington.....
11874		do.....	.....	L. Thomas, Oxford.....
11834		Acid Vinegar.....	.....	Vogler & Hege, Waughtown...
11575		Vinegar.....	.....	T. E. Ward, Edenton.....

AND SUBSTITUTES FOR VINEGAR—*Continued.*

Laboratory Number.	Acidity, Total—Per Cent.	Solid Matter in Solution—Per Cent.	Ash—Per Cent.	Total Sugars—Per Cent.	Non-sugar Solids—Per Cent.	Remarks and Conclusions.
11573	4.76	0.70	-----	-----	-----	Compound vinegar. Was sold by retail dealer as vinegar; misrepresented; sale as vinegar illegal.
12572	1.94	1.57	0.25	-----	-----	Product is so low in acidity it cannot be termed a vinegar; sale as vinegar illegal.
11463	4.42	2.04	-----	-----	-----	Vinegar.
12565	4.61	2.49	0.43	-----	-----	do.
11838	4.30	2.09	-----	-----	-----	do.
11486	2.42	1.66	-----	-----	-----	Vinegar, much below standard in acidity; sale illegal.
11519	4.16	0.24	-----	-----	-----	Spirit vinegar, colored. Was sold by retail dealer as vinegar; misrepresented; sale as vinegar illegal.
11536	4.50	1.94	0.25	0.65	1.29	Compound vinegar.
12045	4.86	2.51	-----	-----	-----	Vinegar.
12535	4.54	3.86	0.94	-----	-----	Sirup or sugar vinegar.
11594	5.46	1.92	0.29	-----	-----	Vinegar.
12024	4.14	1.19	0.20	0.40	0.79	Compound vinegar. Was sold by retail dealer as vinegar; misrepresented; sale as vinegar illegal.
11480	3.78	2.04	-----	-----	-----	Vinegar, below standard in acidity; sale illegal.
11874	3.58	1.79	-----	-----	-----	do.
11834	3.88	0.24	-----	-----	-----	Spirit vinegar, below standard in acidity; sale illegal.
11575	2.84	0.61	0.17	0.15	0.46	Compound vinegar, below standard in acidity; sale illegal.

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LEAF TOBACCO SALES FOR OCTOBER, 1913.

Pounds sold for producers, first hand.....	54,153,851
Pounds sold for dealers.....	2,177,722
Pounds sold for warehouses.....	2,421,032
Total	58,752,605

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